Issue 30

COMMODORE MAGAZINE

VOL 5 NO 2

AUSTRALIAN **$4.60**
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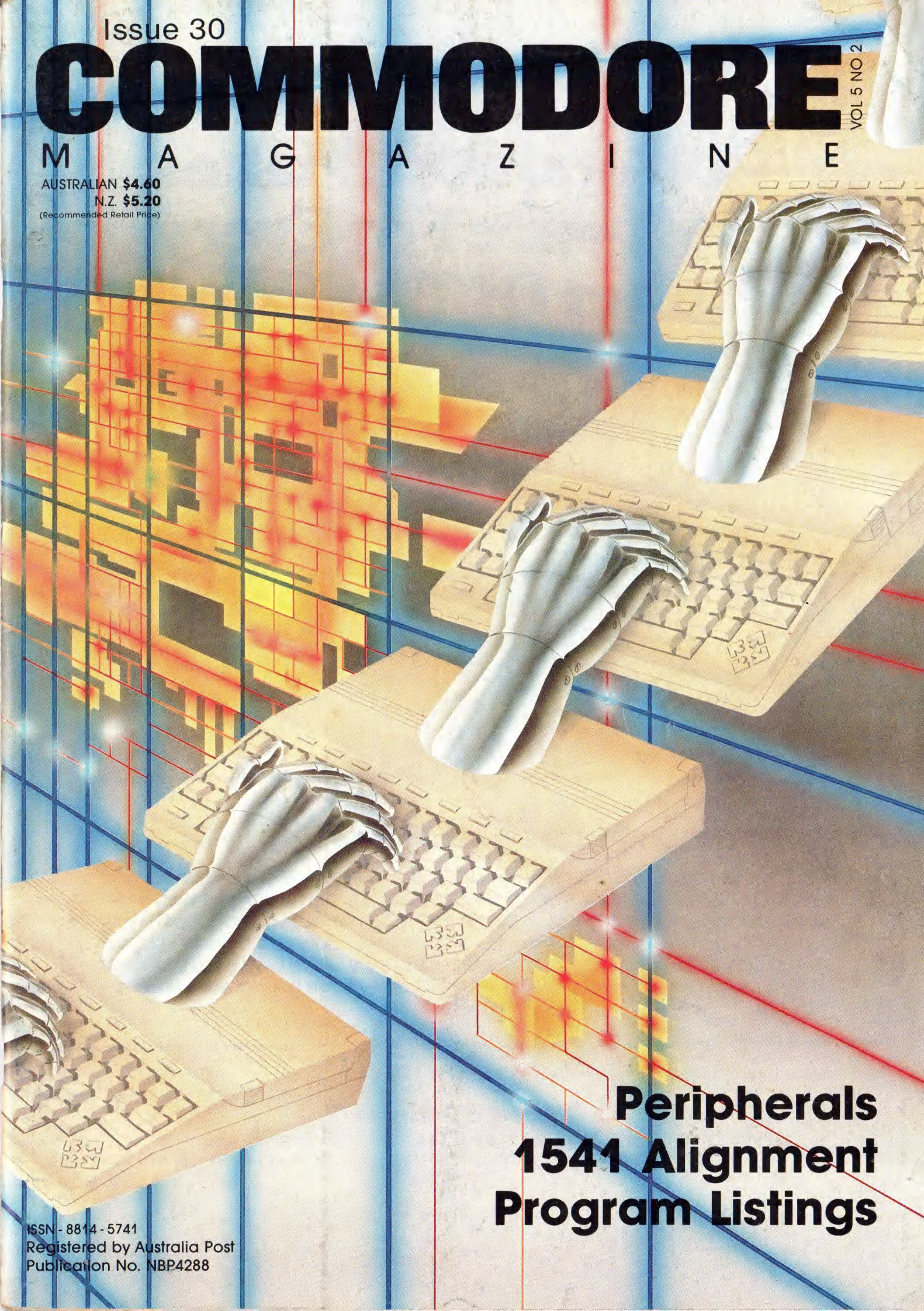

Peripherals
1541 Alignment
Program Listings

ISSN - 8814 - 5741
Registered by Australia Post
Publication No. NBP4288

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COMMODORE MAGAZINE

COMMODORE USERS MAGAZINE VOLUME 5 NUMBER 2 ISSUE 30

Commodore Magazine is published 6 issue per volume currently 10/12 issues a year (this may alter without notice.) Produced by Mervyn Beamish Graphics Pty Ltd through its division Kim Books. The cost of a one volume subscription (6 issues including p&p) is $A30 within Australia, $NZ36 within New Zealand and $A38 elsewhere. Overseas airmail (including New Zealand) $A8 extra. Subscriptions are available from the Publisher and individual copies from News Agents, dealers and other retail outlets.

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CARTOON–
Ian Richards
... bless his little cotton socks!

Melissa Williams has gone to the bank – she's the only one who knows where the mail order lists are and this guy hasn't received his order yet – he is ringing STD!

Dunn and Bradstreet want to know if they are to commence court proceedings on the cheques that bounced.

Check this cover will you I cannot find anything within the issue it can relate to.

There's a reader on the phone.....

Grab a book out of that box and get Wayne Hodges or someone to do a book comment tonight we've got a hole in page 48.

Printer wants confirmation that art is ready to go tomorrow afternoon.

Who's doing the typo corrections Denise Elkins has been up all night on the paste-up. Is she the only one we've got available?

The timer has gone in the camera – service people cannot get here till tomorrow afternoon. Yes I've tried percussion maintenance. I've kicked it in all four corners!

Look at these two program listings – they do virtually the same thing.

There is a reader on the phone....

User Group wants publicity for it's convention. It has got to go in this issue else it will be too late.

There is a reader on the phone.....

We cannot use the article you promised last issue its got too many gotchas in it.

Marilyn just rang – there is a strike at Brisbane airport and she can't get out till the morning flight – you'll have to pick the kids up from school.

Ian Richards is screaming – his cat just knocked ink over next month's front cover.

Tony Webster wants another colour page for this issue artwork – will not be ready till lunchtime tomorrow.

Hey where are you going with my desk? To have it REPAINTED? NOW?

There is a reader on the phone....

Apologies to ANALOG Magazine.

EDITOR
MERVYN BEAMISH

READ THIS PAGE
Before entering listings printed in this magazine.

If you want to enter any of our programs without HELPOUT, omit the checksum at each line.

HELPOUT

HELPOUT is a program checker that makes it easier to correctly enter C64 programs from the Commodore Magazine. Once HELPOUT is loaded enable it with SYS49152, type TEST <CR>.

A typical line would be:

6045 NEXT:GOSUB 6300'CFSI

You type ALL of it, remembering to use a single quote ('), not "talking marks". You may use shorthand typing (GO then SHIFT and S for GOSUB, for example), and put in or omit spaces as you like (except, of course, inside quotes).

If you do it wrong, one of six error messages will appear, and a fog-horn will blow.

NO CHECKSUM: You probably forgot the apostrophe, or some or all of the four character checksum. Cursor to the end of the line, enter the checksum as shown, and press Return.

QUOTE: HELPOUT checks to ensure that quotes come in pairs. Either you left one out, or got a bit carried away and added one of your own.

PARENTHESIS: This is like QUOTE, except that HELPOUT looks for pairs of (and).

KEYWORD: You may have misspelled a Basic keyword (GOSLOB instead of GOSUB) or simply left one out. Recheck the line.

#OF CHARACTERS: Ignoring spaces outside quotes, you have typed too many or too few characters. This could even be a typo in a keyword, so check the line carefully.

UNIDENTIFIED: The cowards way out. The line is not right, but the error could be any of a number of things- wrong line number, wrong checksum, or you just mussed it up. Read the line carefully to find the error.

If you do get an error, the line WILL NOT be entered into your program. You will have to take some action to correct it before that can happen. To clear the error message, press any key (the line underneath the error message will not be affected if you use, say, the space bar), then get to work to fix the problem.

Then the line is OK, HELPOUT strips off the checksum, then enters the line into your program. There is no program space overhead from using HELPOUT.

We like HELPOUT. It comes from Mark Robin, and is the program that Commodore uses in its homegrown magazines. With a pedigree like that, and with the very considerable help it gives, we know it will make your programming more enjoyable.

If you want to add checksums to a program of your own, say for this magazine or a User Group publication, load HELPOUT and get it all going. But this time, enter ADD <CR> instead of TEST.

If your program is already written, load it and LIST it to the screen. Using the cursor keys, put the cursor on each line in turn and press Return. You will get a chirp of sound at each line, but nothing will appear on the screen until you type LIST again.

ADD will include checksums if you are writing new lines. Nothing could be more simple!!

Lastly, you may turn HELPOUT off to suit yourself. Type KILL <CR>, and HELPOUT is disconnected. If you want it again, type SYS49152 <CR> and away you go.

```
1000 REM: HELPOUT '64
1010 REM:
1020 REM: COMMODORE MAGAZINE
1030 REM:
1040 SA=49152:FA=50052
1050 FORI=SATOFA:READA:S=S+A:POKEI,A:NEXT
1060 IFS<>103233THENPRINT"->ERROR.. CHECK AGAIN!!":END
1070 PRINT"OK":NEW
1080 DATA  76, 35,192,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0,  0, 13
1090 DATA   0, 88,193, 94,193,102,193,118,193,131,193,143,193,234,234
1100 DATA  76,131,192,162,  5,189, 29,192,149,115,202, 16,248, 96,160,  2
1110 DATA 185,  0,  2,217, 60,193,208, 11,136, 16,245,169,  1,141, 16,192
1120 DATA  76, 31,193, 96,160,  3,185,  0,  2,217, 56,193,208,224,136, 16
1130 DATA 245,169,  0,141, 16,192, 76, 31,193, 96,160,  3,185,  0,  2,217
1140 DATA  52,193,208,224,136, 16,245,160,  5,185,162,227,153,115,  0,136
1150 DATA  16,247,169,  0,141, 24,212, 76, 31,193,230,122,208,  2,230,123
1160 DATA  76,121,  0,165,157,240,243,165,122,201,255,208,237,165,123,201
1170 DATA   1,208,231, 32, 90,192,173,  0,  2, 32,163,192,144,220,160,  0
1180 DATA  76,234,193,201, 48, 48,  6,201, 58, 16,  2, 56, 96, 24, 96,200
1190 DATA 177,122,201, 32,208,  3,200,208,247,177,122, 96, 24,200,177,122
1200 DATA 240, 53,201, 34,240,245,109,  5,192,141,  5,192,173,  6,192,105
1210 DATA   0,141,  6,192, 76,189,192, 24,109,  7,192,141,  7,192,144,  3
1220 DATA 238,  8,192,238, 11,192, 96, 24,109, 10,192,141, 10,192,144,  3
1230 DATA 238,  9,192,238, 12,192, 96, 10,168,185, 17,192,133,251,185, 18
1240 DATA 192,133,252,160,  0,169, 18, 32,210,255,177,251,240,  6, 32,210
1250 DATA 255,200,208,246, 32, 84,195, 32,126,195, 32,228,255,240,251,160
1260 DATA  27,185, 63,193, 32,210,255,136, 16,247,104,104,169,  0,141,  0
1270 DATA   2, 76,116,164, 75, 73, 76, 76, 84, 69, 83, 84, 65, 68, 68,145
1280 DATA 145, 13, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32, 32
1290 DATA  32, 32, 32, 32, 32,145, 13, 81, 85, 79, 84, 69,  0, 75, 69
1300 DATA  89, 87, 79, 82, 68,  0, 35, 32, 79, 70, 32, 67, 72, 65, 82, 65
1310 DATA  67, 84, 69, 82, 83,  0, 85, 78, 73, 68, 69, 78, 84, 73, 70, 73
1320 DATA  69, 68,  0, 78, 79, 32, 67, 72, 69, 67, 75, 83, 85, 77,  0, 80
1330 DATA  65, 82, 69, 78, 84, 72, 69, 83, 73, 83,  0,200,177,122,208,251
1340 DATA 132,253,192,  9, 16,  3, 76,199,193,136,136,136,136,136,177,122
1350 DATA 201, 39,208, 19,169,  0,145,122,200,162,  0,177,122,157, 60,  3
1360 DATA 200,232,224,  4,208,245, 96, 76,242,194,160,  0,185,  0,  2,153
1370 DATA  64,  3,240,242,200,208,245,160,  0,185, 64,  3,240,232,153,  0
1380 DATA   2,200,208,245, 32,215,193, 76, 86,194,160, 11,169,  0,153,  3
1390 DATA 192,141, 60,  3,136, 16,247,169,128,133,  2, 32, 27,195,160,  0
1400 DATA  32,155,193, 32,202,193, 32, 49,194,230,122,230,123, 32,124,165
1410 DATA 160,  0, 32,175,192,240,205, 36,  2,240,  6, 32,215,192, 76, 18
1420 DATA 194,201, 34,208,  6, 32,188,192, 76, 18,194, 32,231,192, 76, 18
1430 DATA 194,160,  0,185,  0,  2, 32,163,192,200,144, 10, 24,109,  9,192
1440 DATA 141,  9,192, 76, 51,194,136,162,  0,185,  0,  2,157,  0,  2,240
1450 DATA   4,232,200,208,244, 96, 24,173, 11,192,105, 65,141, 11,192, 56
1460 DATA 173, 12,192,233, 25,144,  6,141, 12,192, 76, 96,194,173, 12,192
1470 DATA 105, 65,141, 12,192,173,  5,192,109,  7,192, 72,173,  6,192,109
1480 DATA   8,192,141, 14,192,104,109, 10,192,141, 13,192,173, 14,192,109
1490 DATA   9,192,141, 14,192, 56,233, 25,144,  6,141, 14,192, 76,150,194
1500 DATA 173, 14,192,105, 65,141, 14,192,173, 13,192,233, 25,144,  6,141
1510 DATA  13,192, 76,171,194,173, 13,192,105, 65,141, 13,192,160,  1,173
1520 DATA  11,192,205, 60,  3,208, 32,200,173, 12,192,205, 61,  3,208, 23
1530 DATA 200,173, 13,192,205, 62,  3,208, 14,173, 14,192,205, 63,  3,208
1540 DATA   6, 32,100,195, 76,122,192,173, 16,192,208, 17,152, 72,104, 76
1550 DATA 247,192,173, 16,192,240,  1, 96,169,  4, 76,247,192,164,253,169
1560 DATA  39,145,122,162,  0,200,189, 11,192,145,122,200,232,224,  4,208
1570 DATA 245,169,  0,145,122, 32,100,195, 76,122,192,160,  0,185,  0,  2
1580 DATA 240, 17,201, 40,208,  3,238,  3,192,201, 41,208,  3,238,  4,192
1590 DATA 200,208,234,173,  3,192,205,  4,192,208,  1, 96,169,  5, 76,247
1600 DATA 192,169, 32,141,  0,212,141,  1,212,169,  9,141,  5,212,169, 15
1610 DATA 141, 24,212, 96, 32, 65,195,169,129, 32,119,195,169,128, 32,119
1620 DATA 195, 76,113,195, 32, 65,195,169, 17, 32,119,195,169, 16, 32,119
1630 DATA 195,169,  0,141,  4,212, 96,141,  4,212,162,112,160,  0,136,208
1640 DATA 253,202,208,250, 96
```

NICE LISTER CONVENTIONS

1. All control, colour, function, and shifted and Commodore key graphics are converted to 'words' (or the abbreviations as represented on the keyboard) enclosed in square brackets [ ].
For example, [DOWN], [CLR] and so on.

2. Multiple cursor controls are represented by one word plus a number.
For example, [DOWN 15].

3. Shifted graphics (right-hand symbol on key) are converted to the corresponding alphabet character enclosed in square brackets. A shifted 'S' heart character becomes [S].

4. Any character accessed by the Commodore (C=) key is indicated by further enclosing the alphabet character inside the symbols <>.
A Commodore 'A' becomes [<A>].

5. With multiple characters, the redundant brackets][are replaced by a comma as:-
[CLR,DOWN5,WHT,<A>]

6. With multiple shifted graphics, the alphabet character is simply repeated, numbers are not used as [AAAAAAAAAAA].

7. Multiple Commodore graphics are repeated as [<A>, <A>, <A>, <A>].

8. Spaces and shifted spaces within quotes are represented by the words [SPACE] or [SHSPACE] followed by a number if required.
For example, [SPACE15].

9. Extra words are used for the following control characters.

Keyword	CHR$	
DEL (CRTL-T)	20	
INS	148	
TEXT (CTRL-N)	14	converts character set to upper/lowercase mode.
GRAPH	142	converts character set to uppercase/graphics mode.
LOCK (CTRL-H)	8	disables the C = key and locks the keyboard in the current character mode.
UNLOCK (CTRL-I)	9	enables the C =key sequence.

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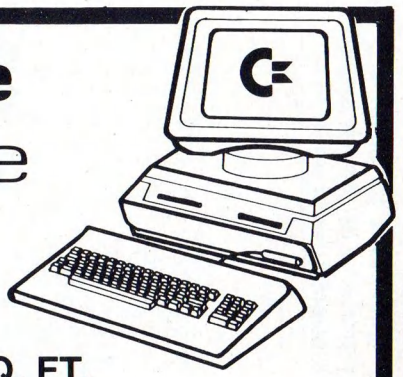

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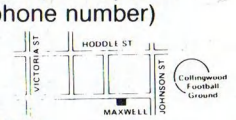

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News Releases

Bits and pieces received since last issue.

AGRIBUSINESS SOFTWARE

CORGI & BANTAM ELECTRONIC PUBLISHERS have recently taken on the distribution of SUNRISE SOFTWARE.

SUNRISE is the only software available now which has been developed specifically for the Australian rural community. It was developed in liason with farmers, the Department of Agriculture, McMillan Rural Studies Institute in Bairnsdale and the Victorian College of Agriculture and Horticulture.

There are presently eight programmes available with another four due for release throughout 1985. They have been developed for use on the Commodore 64 with disk drive and are priced very competatively – all packages are priced at $100 retail.

SUNRISE SOFTWARE is a farming tool which will enable quick on-farm decisions to be made, decisions that effect the profitability of an enterprise.

BEEF CATTLE

The Beef Cattle program assists farmers to determine the profitability of different stock ratings, calving percentages, sales values and expenses. A "per head" analysis is produced by the program on the profitability of the cattle selected for the analysis. This analysis allows you to see the effect of varying weights, purchase and sale prices. This is compared to the D.S.E. rating, hectares/acres and per head per day on the farm. The program will show you the financial outcome of your enterprise using your budgeted year's production. The system includes a stock of reconciliation. It can also be used for your actual figures for the current year's production. This program was developed in liason with farmers, Department of Agriculture and McMillan Rural Studies Institute.

DAIRY

The Dairy program has been developed to help farmers determine the profitability of different stock ratings, calving percentages, sales values and expenses. A "per head" analysis is produced by the program on the profitability of the cows as selected for the analysis. This allows you to see the effect of varying milk yields and milk prices. This is then compared to the stock ratings, hectares/acres and milk yields. The program will show you the final outcome of your enterprise using your budgeted year's production. The system includes a Stock Reconciliation. This program was developed in liason with farmers, Department of Agriculture and McMillan Rural Studies Institute.

CROPPING

This program will assist the farmer to determine the profitability of different types of crops, crop yields, sales values and crop expenses. A "yield" analysis is produced by the program on the profitability per hectare/acre. This analysis allows you to see the effect of any variance in sale prices and yield. The income is compared to your expenses in percentage form. The program will show you the financial outcome of your enterprise using your budgeted year's production. It can also be used for your actual figures for the current year's production. This program was developed in liason with farmers, Department of Agriculture and McMillan Rural Studies Institute.

SHEEP

This program will assist you to determine the profitability on different D.S.E. ratings, wool weights, lambing percentages, sale values and expenses. A "per head" analysis is produced by the program on the profitability of ewes and wethers. This analysis allows you to see the effect of varying lambing %'s, wool weights and prices. This is then compared to D.S.E., hectares/acres. The program will show you the financial outcome of the enterprise using your budgeted year's production. It can also be used for your actual figures for the current year's producion. The system includes a stock reconciliation. This program has been developed in liason with farmers, Department of Agriculture and McMillan Rural Studies Institute.

HORTICULTURE

The Horticulture program has been developed for the farmer who is involved in Market Gardening.

The program will assist you to determine the profitability in different types of crops. The program will show you the financial outcome of your enterprise using your budgeted year's production allowing you to determine the most profitable crop to grow. It can also be used for your actual figures for the current year's production. The system includes a Stock Reconciliation. This program was developed in liason with farmers, Department of Agriculture and McMillan Rural Studies Institute.

All programs retail at $100. for Commodore 64 with disk drive only.

DOTSOFT MELBOURNE HOUSE

Melbourne House (Australia) Pty. Ltd. has appointed Dotsoft as distributors for their range of Commodore 64 and Commodore 16 software and books throughout Queensland, New South Wales, Victoria and Tasmania.

THE HOBBIT – NOW ON DISK

Melbourne House also announced the release of The Hobbit on disk for the Commodore 64.

The disk version incorporates many more features than the cassette version, including greatly enhanced illustrations, a larger vocabulary of over 900 words, and over 80 locations. The disk version also incorporates music for the first time!

The Hobbit on disk is on sale for $39.95.

ANI'S NEW HIGH-TECH FIRM

Australian National Industries Ltd, (ANI), has formed a new hi-tech importing and marketing subsidiary.

Named Anitech, it will operate throughout Australia and New Zealand.

Many product lines formerly handled by the now superseded ANI divisions, ANI Perkins and Warburton Franki, will form the basis of the Anitech range. These include micro computer equipment and peripherals, engineering, electrical and data systems, electrical and electronic products for all branches of industry and commerce, power tools and other high quality consumer products.

According to Ron Thomas, Anitech Chief Executive, each product will be subjected to local testing and evaluation before release on the Australasian market.

"Our computer-linked sales and distribution network represents a substantial investment and, as we provide a service facility in every capital city for every type of product, we have to ensure that quality meets our standards", said Mr. Thomas.

ANI is among the most diversified of Australia's major public companies.

LASER 800 PRINTER

The LASER 800 represents a quantum leap in the field of professional-quality printers. It effectively renders obsolete the heavy-duty daisywheel printer, being much faster, quieter and more versatile.

A laser printer is akin to a photocopier. The laser writes letters, graphics, etc., onto a photosensitive drum; and these are imprinted onto paper in the same way as with a photocopier.

The "engine" of the LASER 800 – the basic

News Releases

drum/laser mechanism – is manufactured by Canon; and the interfacing and electonics have been designed and manufactured in Australia. While other laser printers use the Canon mechanism, none provide the range of features or the upgradability of the LASER 800 for anything near the price.

Servicing of the LASER 800 is carried out nationally by HONEYWELL; and maintenance contracts are available. Consumables are manufactured by Canon and are precisely the same as with a photocopier – toner and a photo-sensitive drum. Toner and drum are replaced as a single cartridge unit, just as with the popular Canon PC10 personal photocopier.

The basic model of the LASER 800 – the L800-I – has RS232C and Centronics interfaces and emulates the well-known Diablo and Dataproducts printers. It has four built-in character fonts of your choice and occupies the territory of the traditional heavy-duty daisywheel printer.

The next model – the L800-II – performs not only the functions of the daisywheel printer but of a graphics printer and, in part, of a phototypesetter. It reproduces graphics in dot-by-dot emulation of popular matrix printers such as the Epson MX80; has six customer-exchangable character fonts; has a logo printing facility, and other features detailed on the attached brochure. The L800-I is upgradable to this level.

The L800-III and L800-IV have all the features of the lower models plus greatly enhanced graphics reproduction facilities. Again, all models can be upgraded to higher models.

For details contact The Wordworks on (062) 47 7739.

MELBOURNE'S PC85

PC85 – The Fifth Australian Personal Computer Show will be staged at the World Trade Centre in Melbourne from July 17-20, 1985.

The PC market according to Project Manager Fleur Michael is estimated to be worth in excess of $700 million during 1985.

Since 1983 more than 100,000 visitors have attended the Australian Personal Computer Shows.

PC has attracted the supportof nearly all of the major companies in the industry including: Commodore, IBM, Apple, Barson, Hewlett-Packard, Tandy, Imagineering, ARCOM Pacific. Microsoft and many more.

COMPUTER COMMUNICATIONS VIA THE NZ AIRWAVES

Computer buffs can now receive new software programs via commercial radio.

Radio New Zealand and Dick Smith Electronics are pioneering this venture – the very first commercial application of its kind in the Southern Hemisphere – on 26 radio stations across New Zealand.

The General Manager of Dick Smith Electronics in New Zealand, John Gourley, said, "This new concept means that computer programs will be available FREE for transfer from cassette to cassette via the airwaves."

Radio New Zealand's "Tonight Show" producer, Maureen Sinton, feels that it is important that radio reflects the interest in computers. "The Tonight Show will offer a nationwide Computer Club with computer news and an on-going competition", she said. The radio programs on computer are being broadcast on Monday and Tuesday evenings, and the Telesoftware broadcast goes out in the form of audio tones at 3.30 on Wednesday mornings.

THE VELLEMAN INTERFACE SYSTEM FOR THE C64

In order to avoid that a certain interface can only be connected to a single kind of computer, VELLEMAN have designed a few cards each having a special task and in order to adapt all these cards to the different types of computers, there are different motherboards, which are plugged into the extension connector, which have space for four interface cards.

For the existing expansion, such as the Commodore rom-cartridge, a connector is fitted at the back, identical to that of the computer. As a consequence, it is possible to connect up to four motherboards successively, so that up to 16 interfaces can be used at the same time. The number and the kind of interfaces you use, totally depends on the applications and is hardly limited by the possibilities of the system.

The modules of the system are available in kits, or assembled so that you only have to plug-in the desired interfaces to get a suitable system.

At present six interface cards are available for use with the Commodore-64:-

OUTPUT BOARD

Ensures the computer can give on/off commands for lamps, motors, alarms etc.
ANALOG TO DIGITAL CONVERTER BOARD
Permits the computer to measure such continuous variables as temperature, pressure, voltage etc.

INPUT BOARD

Through this board the computer can verify the situation of contacts, security systems, detectors etc.

DIGITAL TO ANALOG CONVERTER BOARD

Often switching on/off is not enough. You may need to provide a continuous varying steering signal which depends on other parameters such as time, temperature, position etc. For example motor speed controllers, heaters and light intensity regulation.

CMOS REAL TIME CLOCK AND RAM

This unit has provision for battery back-up option and offers such possibilities as calendar, alarm timing, crystal time basis, a programmable square wave output and last but not least: 50 bytes of ram to store important data which can then be used after a power failure by an auto load/auto run program.

BREADBOARD INTERFACE

The ideal solution for interface applications that VELLEMAN do not cover. This board has address decoding plus space for your own circuitry.

News Releases

EPSON PRINTER FOR COMMODORE

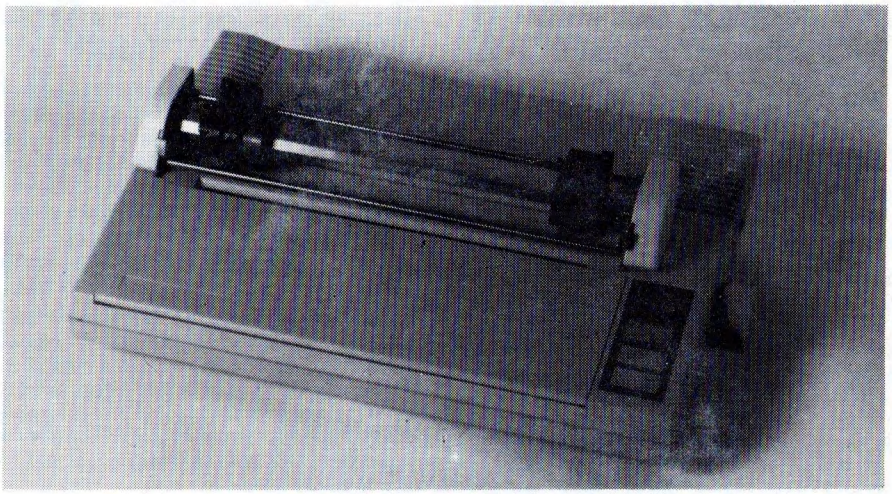
Epson Australia Pty Ltd has announced it will soon release the LX-90 dot-matrix, near letter-quality of printer with Commodore graphics cartridge interfaces.

The LX-90, with a nine-pin print head, will be available from next month.

The printer is said to be capable of producing copy bi-directionally at 100 char/sec. Dip switches are mounted on the front panel.

Friction feed is standard, and tractor feed and cut sheet feeders are optional. The LX-90 will sell for $478, including tax.

Epson Australia says the interesting thing about the printers interface card is that it does not need its own power supply.



Prototype Epson LX-90 Printer

NEW VIATEL CARTRIDGE

Melbourne based ACME software has released a new software package for the Commodore 64 for use with VIATEL and other Telephone Computer databases. Designed to complement ACME Softwares' MicroModem III, the software comes in a plug-in cartridge form for instant and easy use – which also means it can be used by people who have cassette drives or disk drives or no drives at all.

Called 64 TALK, the softwares' VIATEL section allows pages that are received to be stored in memory for later perusal, saving or printing. The pages can be re-loaded for viewing or printing any time in the future. Software can be downloaded from VIATEL, Microtex 666 already has a wide range of software for the Commodore 64 on VIATEL which can be downloaded with 64 TALK and saved to tape or disk. VIATEL's many colour, graphics and other features are made use of and can be displayed on your own television using a C64.

The other section of 64 TALK is called TERMINAL mode. This section allows the set up of the parameters required to communicate with the vast majority of other computer databases in Australia, and as well as all the systems on Telecoms' Austpac and Midas services. Programs can also be downloaded or transferred to another user in this mode. Among other options the display can be set up in forty or eighty columns.

Options and modes can be altered at the press of a key. 64 TALK is an all Australian product and sells for $79.95 including a manual.

USER GROUPS EDITORIALS

Extracts from club newsletters

Ralph De Vries, Queensland, writes:

"We are pleased to welcome our new Maryborough Sub-Group, and certainly hope to hear alot from our members up there.

"It is also gratifying to know that the newly formed Commodore Barcaldine Users Group, and the Cairns Commodore users Group have affiliated with us."

B E Pennings, Comp-Tel, writes:

"Have you looked at any place selling C64 programs lately? Then you will have noticed that the choice is staggering. There are a bewelidering number of games, utitility programs and education programs in existence with more to come all of the time....

"The only way a person has a chance of getting to know which of the programs are useful is by trying them (a prohibitively expensive way) or by reading reviews on programs. ... There is a third method and this is where computer clubs come in, every person is different and so sometimes many different programs are used and therfore many independent reviews.

"This is what clubs are about, the exchange of information and its free within club that's the best part."

Frank Martin, Victoria, writes:

The annual general meeting had to be postponed, because "...the main issue which kept appearing whas how to include a branch structure into the present proposed constitution."

"At Waverley Group in April, they held a Dutch Auction. The items submitted were pre-loved, now non-used items in original packaging. There were also some books available. From the response and the brisk bidding, I would say that a lot of groups should consider this for one of their meetings."

Mark Hopkins, Compu-tech, writes:

"...an application was submitted to the Tech Students Union for financial assistance to help with the printing cost of the mgazine, especially considering the large jump in associated membership fees this year. Members will be pleased to know that our application for assistance has been approved.

"A new Commodore user Group is starting up. It's called the Lake Macquarie Commodore Computer Users' Gjroup. Those wishing to find out more about the club should contact the Secretary, Mick Gill on 75 3369. We wish the members every success."

John Hambley, A.C.T., writes:

"As at 9 March 1985, our Group has on its books 332 members and 94 newsletter postal subscriptions. Outside the main part of A.C.T, there were 15 memberships and 13 newsletter postal subscriptions.

"Within the main part of A.C.T., memberships are concentrated in the newer peripheral areas in the order; Weston, Tuggeranong, North Belconnen, South Belconnen, Woden, North Canberra and South Canberra.

"By the way, as a useless piece of information, the centroid of population of Canberra is just west of the Carruthers Street overpass over Yarra Glen. ..."

Chris Groenhout, A.C.T. Vic-20, writes:

"No body wants to see an entire "local" magazine full of re-prints ... So, if you've written a programme, nor matter how short, or would like to share a computing experience, please write in."

The group has updated it software list. "Updated is quite an understatement as the library has grown over 50% since the last software list in October 1984."

Letters

Address letters to: The Editor, Commodore Magazine, Kim Books 82 Alexander St., Crows Nest 2065

SUPERBASE

Dear Mervyn

Firstly, let me congratulate you on a fine magazine which is foremost in Australia in bringing the latest local developments to the many Commodore enthusiasts in this country. I have just mailed my subsrciption and am looking forward to receiving regular issues.

In Vol. 4, No. 6. you asked readers to give you their opinions on the worth of establishing a SUPERBASE column. I am very definitely in favour of that idea. Since I live in Bacchus Marsh (some 55 kilometres from Melbourne) I do not have easy access to a user's group through which I might be able to obtain assistance with problems which have arisen from time to time when I have been using SUPERBASE. I depend heavily on columns, hints and tips, articles etc. published in magazines such as yours for solutions to those problems.

I therefore see a regular column on SUPERBASE as a very desirable feature of your magazine. I don't have much to offer in the way of contributions to such a column but I certainly do have some questions which I would like answered if possible.

I will only bother you with one question in this letter and save others for later. The question is:-

Is there any way to delete large numbers of unwanted records from a file without going through the tedious and time consuming task of pressing the "d" and "y" keys from the "select" screen? I have a system which requires housekeeping tasks of this nature to be performed on a regular basis. The nature of the system is such that if the records are not deleted it takes "forever" to build key lists using the FIND command. The output from the system is interfaced with EASYSCRIPT using the merge facilities of that word processor. I have tried using the "BATCH" command but to no avail. Any assistance I could get from readers to solve my problem (or at least to convince me that there is no easy solution) would be greatly appreciated.

I was also very interested to read that a revised version of SUPERBASE has been released in the U.K. I look forward to hearing more about this in future issues.

Once again, congratulations on a fine magazine.

Yours Faithfully,
Michael Robertson
Baccus Marsh

ED – I wish that I had as interesting reply as your letter deserves. A lot of interest has been shown in SUPERBASE and I believe that it will not be long before we have a regular SUPERBASE column.

I've sent you letter to Paul and hope that we can print a suitable answer in the next issue. Is there any reader out there who can help?

Thanks for the pat on the back.

RCOM BBS (02)667 1930

Dear Mervyn,
Firstly I must congratulate your team for pulling Commodore Magazine out of a black hole and placing it on a pedestal high above the majority of international publications that I've seen, (and I can tell you, I've seen plenty). Paul and Greg deserve a great deal of credit for their hard work, interesting and useful articles. I wish you every success with spreading this publication further abroad.

I read with interest the supplement on Term 64 and associated appendices in issue no.1 vol.5 May 1985. RCOM was listed in the PAMS list, but you had little information to go on. This letter is to fix all that, and introduce you to the only Bulletin Board System in the country that supports the special features of the Commodore 64.

SIMON'S RCOM BBS, or RCOM for Remote COMmodore, was conceived by me in NOV 84. Intensive software development by myself was carried out for 4 months and RCOM went online 24 hours on the 8th of FEBUARY 1985, in it's basic form. Since then a futher 300-400 hours of development has been done, making the total to date at around about 800 hours of work just programming and refining RCOM into the highest quality, easiest to use BBS around. I had no idea of the size or commitment of the task that I'd let myself in for.

I was given an SFD 1001 1 meg disk drive and a Commodore 64 by the SYDCOM users group and told "go for it!". I didn't know of any BBS software around at the time so I wrote it myself. After logging on to as many other systems as possible and seeing what they had to offer, I decided that RCOM was going to be different, it was going to have colour, graphics and sound. That's why a special terminal program is required. It handles screen colour changes changes and all the other special features offered by RCOM. The only thing that is holding back SIMON'S RCOM BBS is getting the terminal software to the people.

RCOM also has all the usual features of a BBS i.e. FILE TRANSFER LIBRARY, A MESSAGE BOARD, PRODUCT REVIEWS of software and hardware, the ability to CHAT with or LEAVE A MESSAGE for the SYSOP, a section on the SYDCOM users group, ELECTRONIC SHOPPING and a stack of other features.

ELECTRONIC SHOPPING enables people to order pre-screened, high quality software from home, pay with Bankcard or Mastercard, and have it postal delivered. Our low overheads make it possible for RCOM to offer substantial savings in the process. RCOM is particularly keen to promote and sell Australian software, because we've seen how often Oz authors have problems with obtaining satisfactory distribution.

The FILE TRANSFER LIBRARY is of course PUBLIC DOMAIN ONLY, and operates on a rotation basis, I have a separate disk for each day and they are updated constantly, so there is always something new to download. The library operates from a 1541 drive and I am trimming the software to the 'cream' of Public Domain programs.

The software that runs RCOM is always being updated and rarely a week goes by that a new feature isn't added or an old one modified to make it just that little bit better. Why do I do it? Just crazy I guess, but I'm enjoying myself. In the same way that you are enjoying an ego trip running the best computer magazine in Australia, I am having one running and developing the best privately owned BBS in Australia.

I have NO connection with any business or commercial type establishments and I'm not in it for financial gain. I am a dedicated hacker and a 'little cracked around the edges' or so I'm told. What I do need is the publicity that a magazine of your standing and power can provide. Please, log on to RCOM. It is well worth the look. Also If you have the space you are most welcome to print the cutdown version of our terminal program 'RTERM'. It is short any easy to key in, and I'm sure your readers would like the chance to check out the most innovative Commodore BBS in the country.

P.S. RCOM is a C-64 BBS only. 24 Hours – 7 Days a week. Free access to all C-64 users.
Simon Finch
SYSOP OF SIMON'S RCOM BBS

ED – Thanks Simon and I think your BBS is one of the most exciting things going on the local Commodore scene at the present moment.

RTERM is printed on page 29 of this issue.

SUPERBASE

Dear Sir,
My father and I think that it is an excellent idea to start up a SUPERBASE column, as we have been trying to set up a file to record the nominations for a swimming carnival.

As we are having a few problems we would be grateful if anyone has already established a program that we could use.

Yours Faithfully
A. Clark (13 years)
Renmark S.A.

ED – Can anyone help!

USER GROUP

Dear Sir,
I live at Geurie which is near Dubbo and if anyone reads this letter and is interested in joining a uses group please contact me or ring (068) 871276.

Could you help me? I have a 1541 disk drive which some times will not load utility and some games e.g. Siren City. It gives a FILE NOT FOUND ERROR. I have cleaned the heads but this does not seem to help much.

Yours Faithfully,
Bill Shields
Geurie N.S.W.

ED – sounds like disk Alignment to me. Read the article is this issue.

MICROTUTOR

Now you can have fun learning Maths and Spelling!

- friendly robots guide the way
- automatic score keeping always displayed
- simple to operate no supervision needed
- different levels of difficulty within each program

Versions for the Commodore 64 and Vic 20 are available for the following titles

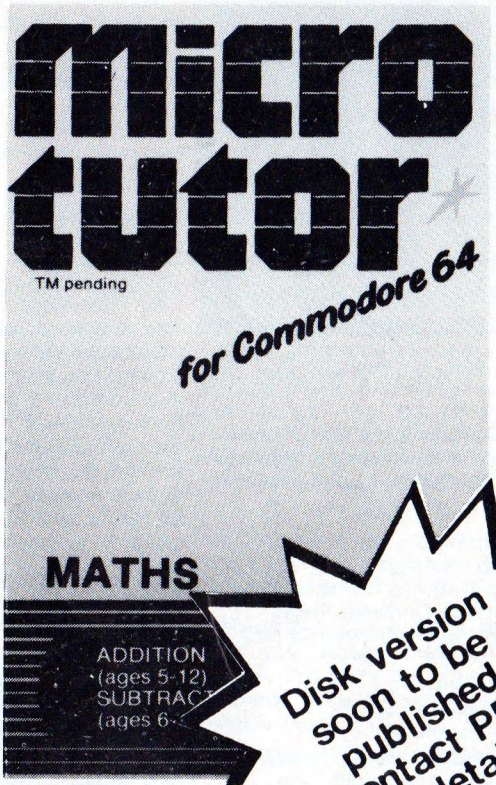
rrp $15.95 each programme
(plus 20% sales tax)

Spelling

Cassette 1: Year 2 Spelling (ages 7-8)
Year 3 Spelling (ages 8-9)
Cassette 2: Year 4 Spelling (ages 9-10)
Year 5 Spelling (ages 10-11)
Cassette 3: Year 6 Spelling (ages 11-12)
Words in Social Studies (ages 11-13)
Cassette 4: Words of Australia (ages 9-12)
Words in Science (ages 7-12)

Maths

Cassette 1: Junior Plus (ages 4-8)
Junior Minus (ages 5-9)
Cassette 2: Junior Times (ages 6-12)
Junior Divide (ages 7-12)
Cassette 3: Addition (ages 5-12)
Subtraction (ages 6-12)
Cassette 4: Multiplication (ages 7-12)
Division (ages 8-12)
Cassette 5: Times tables (ages 7-12)
Arithmetic problems (ages 7-12)
Cassette 6: Metric length (ages 9-adult)
Decimal fractions (ages 8-13)
Cassette 7: Find × (ages 8-12)
Long addition (ages 8-12)



Disk version soon to be published. Contact PES for details

Pitman Education Software
158 Bouverie Street,
Carlton, Vic. 3053
Ph. (03) 347 3055

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Freight charges: Single copies $1.50 2-3 copies $2.00
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PES

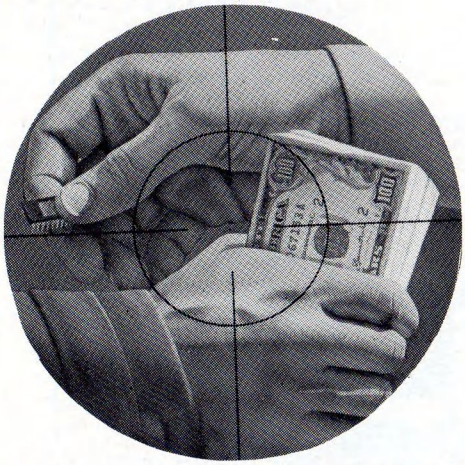
PITMAN EDUCATION SOFTWARE

Reviews

Software and Publications

Espionage in the Silicon Valley

Author: John D. Halamka
Publisher: Sybex
ISBN No: 089588-255-6
Reviewed by: Lawrence Hulse



This is a book about hot chips with all the sauce! It details five famous criminal cases involving the theft hi-tech goodies.

As an example, the first case study goes behind the scene of the theft and sale of classified U.S. defense-oriented high technology data to the Polish Government and Russia's KGB.

Among the documents stolen from Systems Control Inc, which is a defense contractor located in Palo Alto California, and then sold to the Poles were:

> Endoatmospheric Nonnuclear Kill Technology
> Minuteman Defense Study
> Ballistic Missile Defense Study
> Summary of Soviet Growth Threat
> High Tech Study
> Intercept Technology
> Optical Tracking Program
> MX Threat Parameters
> Data Processing Requirements for Advanced Defense Constructs
> Development Specifications for Sensor and Engagements
> Controller Subsystem
> Optics Technology
> and Design Specifications for MX.

These documents still carry a Secret classification according to the author.

Another case history, The Night of MOS and Mayhem, details the chip black market, and includes execution-style murder, illegal chip and cocain trafficing, along with grand theft.

One other case study warrents a mention because of its world-wide notariety. Here it's entitled The Tokyo Transgression. It is the behind-the-scenes story of Hitachi's attempt to steal IBM's trade secrets.

The author says, "Hitachi Corporation's ill-fated espionage campaign against IBM ... is not a case that revolves around the schemes of a few private individuals. ... For the Hitachi executives, their actions seemed to represent little more than an extension of normal business activities that got out of hand. ...If the Japanese are famous for concern with "face", it would appear that IBM desired to play on this characteristic and embarrass Hitachi's executives to the maximum extent possible." The hardware involved was IBM's:

> 3081 CPU which contains the innovative Thermal Conduction Modules which carry up to 45,000 circuits and handle the heat they generate; and 3380 disk storage system which holds four times more data than its predecessors, and can access the data faster as well. It consists of two head and disk assemblies.

The outcome of this case is not quite what is expected, and so rewards its readers.

The author is well placed to know this subject because he has owned and operated a computer corporation in the Silicon Valley and so experienced several facets of the high-tech espionage problem first hand.

MASTERING THE COMMODORE 64

Reviewer: Norm Collings

The layout of this book is good. The first chapters take you through beginning information such as what actually happens in a computer, then into simple familiarization exercises. This is followed by a run through of the C64 BASIC statements and functions which is then followed by gradually more complicated concepts such as Sprite and Sound handling and a small chapter on machine language.

One of the aspects I particularly appreciated was the section on "Programming Style" and in general the sample programs in the book followed good modular practices.

In the chapter on BASIC there are lots of small example programs to help explain each statement or function. As a person not familiar with C64 BASIC, I found this a good way to learn the differences between C64 and other Basics.

Throughout the book REM statements are used well to aid the explanation of programs. There are some really very clear and logical explanations of statements. A good example is the definition of PEEK:

> "PEEK(X)
>
> This function returns the contents of the memory location represented here by X. The input to the function must be a number between 0 and 65536 as this is the maximum memory location of the Commodore 64. The number returned is an integer between 0 and 255, as the largest number which can be represented in the eight-bit binary code stored in the Commodore 64's memory locations is 255."

The good things having been highlighted I must say that for a well laid out approach to the C64, there were many examples of unchecked work in the book. In fact I gave up detailed reading and entering/running program examples by page 86. I was frustrated by having to stop and deduce and pencil in corrections to either the text or the program listings.

Some examples are:

Program listings with accidently duplicated code (Page 60, lines 250 to 290 duplicated by 300 to 340);
Lines that give SYNTAX errors (Page 55, first program, line 10);
Program results that are incorrect (Page 41, the error message quotes the wrong line number), and
DATA statements in a program that are not required and would confuse a beginner (Page 59, first program, lines 70 to 90).

The example that finally drew me to a halt was the sample game program starting on Page 83. The program worked well and was great to explain lots of things to a beginner but the "How the Program Works" section was riddled with errors (I counted 18).

It would be almost impossible for a starter in computers to deduce the correct line numbers or values. (It even talks about an ASC statement which is not in the program.)

The rest of the book looked good and seemed to have lots of technical detail but I wonder about its accuracy. There are sections on advanced graphics techniques such as "The Video Interface Chip", "High Resolution Graphics" and "Bank Switching". In the chapter on music there is a simple tutorial on "The Nature of Sound" followed by another on "Wave Forms and Sound Characteristics".

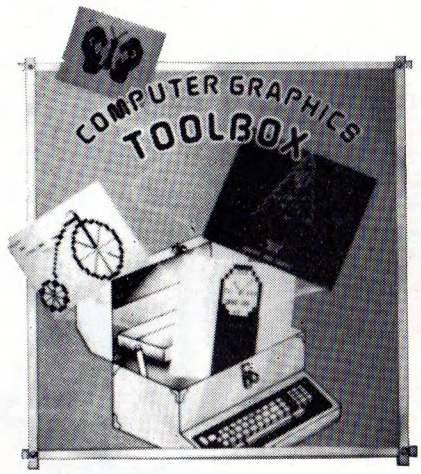
This paperback is written by Peter Vernon and published by Prentice-Hall of Australia Pty Ltd. It's 240 pages long and has a recommended retail price of $16.95.

Author: Peter Vernon
Publisher: Prentice-Hall Publishers

The Commodore 64 Graphics Toolbox

by Russell L. Schnapp & Irvin G. Stafford

Reviewed by Wayne B. Hodges



After selecting this book from the bookshelf at your local Computer Shop you are immediately impressed by the front cover which promises much to come. Once inside you are confronted by the Editor's Forward, whhich highlights the key features of the book, these include:

- The examples are all interesting ones that you can RUN and watch on the screen.
- Complete explanations, sample results, and suggested modifications.
- Full, documented listings in BASIC.
- Two picture editors provide suprisingly capable tools for drawing, saving, and changing pictures.
- An extensive TURTLE graphics program shows the ideas behind LOGO.
- Complete maze, tic-tac-toe, and spaceship lander programs.

It is worth noting that throughout this book all programs have the following format:

PROGRAM NAME: The name used to save the program on tape or disk.
PURPOSE: What the program does.
TECHNIQUES DEMONSTRATED: Programming techniques that are being introduced or that you use here or elsewhere.
PROCEDURE: How to use the program.
VARIABLES: A list of all the variables and their meanings.
SPECIAL CASES: Exceptions, limitations and other considerations.
BRIEF DESCRIPTION: Concise description of the program, by line number.
LISTING: Complete, commented programs listing.
MODIFICATIONS: How to change the program listing.
NOTES: Additional information.
REFERENCES: Additional reading on the subject.

THE NITTY GRITTY

CHAPTER TWO:

The graphic capabilities of the Commodore are used in this early chapter with drawings of hearts, flags, elephants, a flag and other interesting ideas.

CHAPTER THREE:

This chapter develops programs which produce geometrical forms. Looking at PRINTCHR and LIMIT, that place characters at specific coordinates and demonstrates some alternative ways of keeping figures on the screen. Then moving onto programs to draw the rectangle, lines, turtle, and the circle.

CHAPTER FOUR:

This chapter explores techniques involved in computer games. Here we see game boards and pieces, throw dice, shuffle cards, construct mazes and more. You will as I certainly did, find this chapter quite enthralling. Using many of the ideas produced here to construct your own games.

CHAPTER FIVE:

Chapter five examines the area of computer art by firstly explaining what the Commodore can do, then procedes to demonstrate quite amazingly how by providing some startling little creations. I found this most helpful and rewarding. I cannot venture any further without saying something about the SIMPLE CHARACTER PICTURE EDITOR and the ADVANCED PICTURE EDITOR. To use these in your capacity, when creating programs, these are definitely worth the cost of the book.

CONCLUSION:

People who are taken in by this amazing COMMODORE COMPUTER will be further enthralled by this production. This publication offers much for the Commodore 64 enthusiast.

Price: $28.50

Distributor: Prentice Hall

The Commodore Experience

by Mike Dean Klein

Reviewed by Wayne B. Hodges

The first thing that attracts you to this rather novel little purchase is the colourful cover, and the claims of the author, "Experience the many worlds of Commodore BASIC." Apart from all the obligatory thanks made in the introduction this book represents the third alternative. It helps you learn how to write programs and at the same time gives you programs you can use right away.

Well, does it deliver the goods?

The book is arranged into five chapters:

I HOME
II EDUCATION
III ENTERTAINMENT
IV BUSINESS
V UTILITY PROGRAMS

SECTION 1: PROGRAMS FOR THE HOME

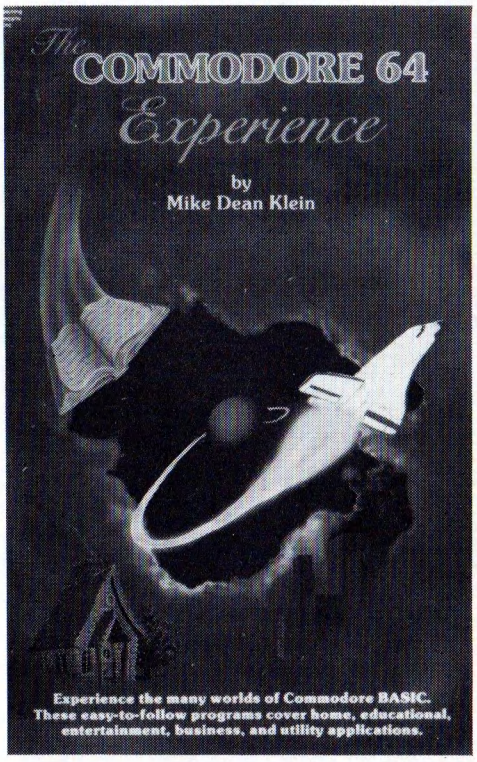
In the first chapter we are shown a number of simple and short programs that will be of some use in and around the home. The first is a RECIPE BOOK. The five basic commands are:

1) Enter file name
2) Edit/examine ingredients
3) Write recipe
4) Read Recipe
5) Quit

This is a short and simple exercise, and does certainly allow plenty of scope for our own individual touches. Other programs include The Shopping List, Phone Book, Kitchen Metrics (now what a good idea), and Budget Helper. All of these programs are quite simple to enter and do offer much around the home.

SECTION 2: EDUCATIONAL PROGRAMS

This section has available:
- Learning the States (alas the U.S.A.)
- Learning the Capitals (same again)
- Maths quizzer
- Trigonometric functions
- Divisors
- Spelling practice
- Foreign Language Study
- Graphic plotter


The COMMODORE 64
Experience
by
Mike Dean Klein
Experience the many worlds of Commodore BASIC.
These easy-to-follow programs cover home, educational, entertainment, business, and utility applications.

This chapter offers a selection of varied programs with an educational theme. I am sorry to say that the programs might be interesting for students of the U.S.A. who might spend a little more time adapting it to our needs. The remainder of this section does offer a keen selection of programs for our use.

SECTION 3: ENTERTAINMENT PROGRAMS

The selection of programs in this part are not what you would expect from the local arcade, but they do provide some entertainment, also providing a basis to your individuality.

SECTION 4: BUSINESS PROGRAMS

In this chapter we are given a most interesting selection for business purposes, such as APPOINTMENT SCHEDULER, COMPUTER CHECKBOOK, and other selections that offer some value. They can be modified for a specific business need.

SECTION 5: UTILITY PROGRAMS

This section might also be headed MISCELLANEOUS, because you may soon discover some interesting things here. It could be like visiting Paddy's market or the local Parish Church Bazaar White Elephant stall. There is something here for all.

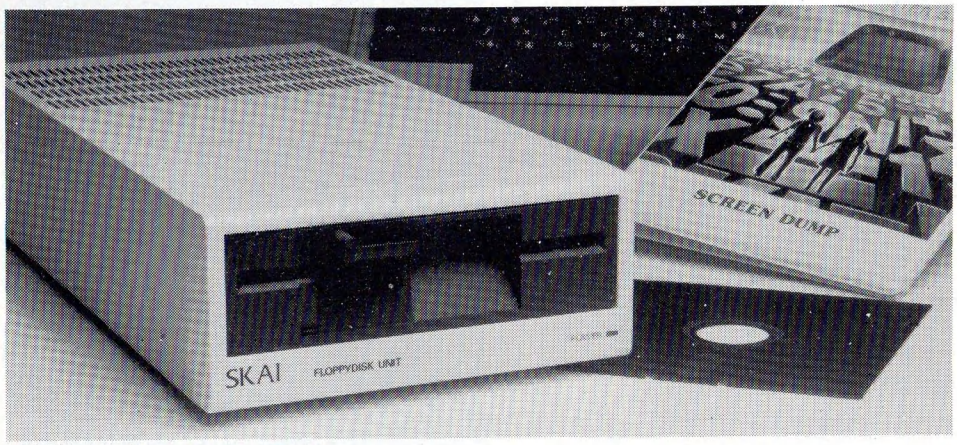
CONCLUSIONS

Now this is the style of book we all should have near the COMMODORE, for reference, and definitely for general use. I really think Mike Dean Klein has done us a great service by providing us with a handy tool which can and should be used when we are digging in and around our computer without getting our fingers dirty!

Price: $28.50

Distributor: Prentice Hall

Peripheral Reviews



THE SKAI-64 (CX 500) DISK DRIVE UNVEILED

Steven Lomas

This report was compiled on behalf of the PORCHESTER PTY LTD by Steven Lomas an independent reviewer. The SKAI-64 (CX 500) is marketed as an alternative drive to the Commodore 1541.

Upon taking possession of the SKAI-64, the packaging was found to be quite adquate, providing protection for the drive whilst in transit. This consisted of a moulded polystyrene housing, wrapped by an attractive cardboard cover, similar to that of the 1541. This however seems to be the end of any coincidental similarities between the two units.

The SKAI-64 is considerably smaller than the 1541 measures 70x163x330mm compared to 97x200x374mm. It weighs a lot less and has a sturdy, white metal housing which has two uses to protect the inside components; and to shield RF emissions generated by the component board which may cause interference to T.V. & RADIO.

To insert or remove a diskette it is a simple matter of rotating a lever through -90 degrees to clear the disk entrance, inserting the disk and rotating through 90 degrees to close the drive. This was found easier to operate than the "Tricky Door" on the 1541.

At the rear of the drive is an ON-OFF switch, two SERIAL PORTS to accommodate daisy chaining, a FUSE, and a 240 volt lead. The SKAI-64 has a device # switch and notes for changing the device number, which is located at the bottom (underside) of the drive.

Four screws at bottom of the casing hold the cover. Among ths SKIA-64 features are simplified board design; easy access to the speed controller; economical SWITCH-MODE power supply with an RF shield; high quality electro-mechanics, ie. (drive mechanism), that is found in many popular, and more expensive disk drives; use of a 27128 eprom to store the 16K ROM, which means that the more technically minded user can easily create a custom DOS.

These attributes may not be deemed as an important aspect of the drive but they play an important part in the reliability, ease of maintainance, user friendliness, and overall life of the disk drive.

Over 800 programs were tested for this report and only eight would not work on the SKAI-64 drive, which indicates that it is a bit better than 99% compatable. The programs that did not load are listed below:-

Fastload	EPYX
Mr. Nibble	F.C.S.
Copy Q	Q-R&D
Copy QII	Q-R&D
Turbo 64	F.S.S.
Profimat V2.0	
Grog's Revenge	
Gemstone Warrior	

It is very dissappointing that the EPYX-FASTLOAD does not work with the SKAI-64, as it is a very useful utility that many would not like to part with. However for curiosity sake, the 1541 ROM routines were written into a 27128 replacing the DOS currently in the SKAI-64. The result was not suprising because the SKAI-64 became totally 100% compatable.

Most turbo programs will not work with the SKAI-64, however TURBO-64 by COCK-ROACH worked quite happily. Currently a TURBO type program being developed to run on the SKAI-64 which will reduce loading time by 500-600%. This program should be released within the next couple of months.

SKIA-64 is distributed by Porchester Pty Ltd, Melbourne, Vic. who have recently released the SKIA-64/PLUS model at a recomended retail price of $399. (Refer page for special reader price).

BLOW YOUR PROBLEMS AWAY

Reviewed by Paul Blair

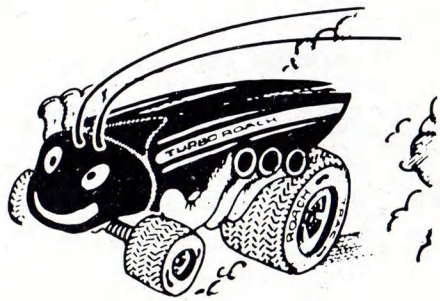
My 1541 disk drive gets a lot of work. It spends its life jammed up next to a hot CBM4040 drive, under a shelf with a ton of paper scattered around. So far it has had two major alignments, a couple of minor nudges, and a replacement drive unit. By the sounds it has been making lately, I was wondering if it was due for another new unit.

But the sounds have largely died away, to be replaced by a gentle swish of air from a small fan unit lent me by the Cockroach boys. Five hours of Superbase no longer poses the threat to disk drive health. At this moment, air passing the fan is six degrees warmer than room temperature, which is 21 degrees C.

The fan is a 75mm diameter "muffin" fan, readily available from electronic parts outlets. It comes mounted in a 90x155 jiffy box, with a metal grille to stop biros jamming up the innards. The box lid has not been replaced, but two locating pegs have been fitted. These pegs fit into the last cooling slot at the rear of the 1541, and stop vibration and possible movement of the unit. The fan then sucks warm/hot air up from your drive and blows it away. Simple, but astonishingly effective.

You could buy all the parts yourself, and assemble it all in about one hour. But the unit, at $35, costs only slightly more than the cost of the individual components, and is safely and tidily assembled ready to plug in and go. Think about it.

The unit came from Cockroach Software, Southport, Qld.



MEGA MODEM

Reviewed by Norm Collins

This is a review of the DICK SMITH (NZ) Mega Modem Kit (K-7313) – refer volume 4 number 6. The kit is a New Zealand one and as far as I can ascertain is not available in Australia.

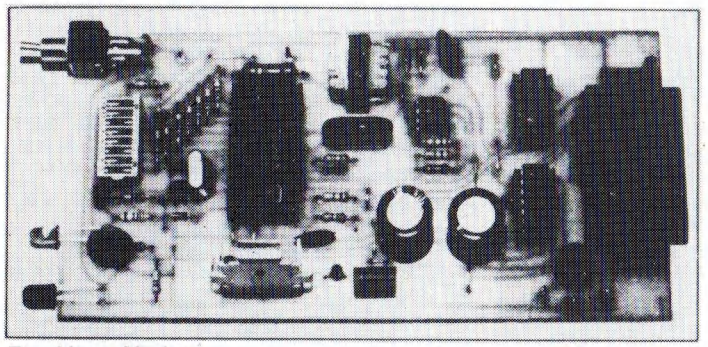
The kit documentation say, "All you require is a computer with a serial interface, a Mega Modem and phone line, a video moniter and some sort of "terminal" program (and then) you can become part of a world-wide network of computer users who access databases and information services everyday".

The documentation is very informative, consisting of an explanation of what a modem is, its uses, construction instructions, and instructions on how to use it.

There is a warning that, "This Modem does not have NZPO approval". Like the New Zealand Post Office, Telecom presumably has not approve of its use either. The Modem's design is safe because it separates the telephone and computer circuitry by a one-to-one transformer.

My electronic knowledge is minimal but I've constructed many kits and this kit is simple to make. Housing the kit is another matter. The Mega Modem doesn't come with a case or the necessary hardware to encase it. I followed the suggestion to put it in a DICK SMITH plastic instrument case (H-2505) but found there were no mounting holes in the printed circuit board (PCB). However, with a bit of case "butchering" and ingenuity this problem was overcome.

The kit uses the AM7910 "World Chip" which gives nine different operation modes and ten modes of self-testing. This encompasses Bell and CCITT standards with 300, 600, 1200 and 1200/75 baud rates. This raises one of the crude aspects of the design which is that an eight way dip switch, PCB mounted, determines the mode and with the modem mounted neatly in a case this switch is not accessable. This is a small problem as most people would be sticking to one baud rate.



The Mega Modem

The only other control is a switch to switch between "Phone" and "Modem" modes. There are two light emitting diodes (LEDs), a red one to indicate power-on and a green one to display "carrier detect".

One modification I made was to solder in sockets for the two RS232 chips. This gives the option of easily removing them to set the modem up for the C64.

Having constructed the kit I followed the instruction connection details to hook it up to a C64, but with no success. I inserted the RS232 driver and receiver chips (not required for the C64) and tried it on a Microbee computer and away it went!

With Paul Markowski's help (he's another Commodore Magazine reviewer) and working from specification sheets of the two RS232 chips we deduced that the documented pinouts were incorrect and having corrected them eventually proved it worked at 300 baud on the C64. It seems to me that the documented method of adapting this kit to work with the C64 and the simple "Terminal Program" provided (which didn't work) had never been tested.

A bonus of this modem is that together with suitable terminal software the modem can be used to handle the 1200/75 baud Videotext standard.

Cost – New Zealand is $NZ249.

DATALIGN

Reviewed by Michael Spiteri

You have just bought a super new game on tape. You eagerly insert the tape, type "LOAD", then press return and the play button on the datasette. Ten minutes later – LOAD ERROR. Oh No! Maybe the tape head is dirty. You give it a quick clean. Still LOAD ERROR. The problem could be that your datasette is not aligned for that tape. Help is at hand.

DPW Enterprises has realised a unique hardware product called 'DATALIGN', and after connecting it up to your datasette, it will make aligning your tape head very easy. It also allows you to visually monitor the loading of a program (plus hear what's going on!)

DATALIGN also has a good point that, I feel, the manufacturer does not emphasize enough. With Datalign connected to your datasette you can actually playback normal music tapes. At last I can play Queen's Bohemian Rhapsody perfectly on my datasette. This is a great idea because it means you can use your datasette to play music other than load/save programs! Even better, the meter acts as a sound meter to your songs! WOW!!

Now that I've just recovered from hearing Queen play on my datasette, let's get down to the installment of the product. The first thing you have to do is install a plug socket into the recorder. This is very simple, all it requires are three simple solder points! (Ah, but you cannot solder your say, well, the manufacturer will install it for a small service charge!)

Anyhow, if I could install the plug socket, anybody can! Then you just plug the DATALIGN into the newly created plug socket.

DATALIGN has an inbuilt speaker with two volume settings, therefore enabling you to listen to the tape loading. If you cannot stand the sound of noise then you can just examine the meter.

The DATALIGN case is very sturdy and made of metal, therefore it should last for a couple of billion years. Four screws on the side allow easy removal of the lid.

How do I align my datasette? Well, on your datasette there should be a very tiny hole, inside this hole lies a screw, and to adjust alignment you turn this screw. Very difficult without DATALIGN, very simple with DATALIGN!

Don't expect me to explain why it is simplier with DATALIGN, the instructions should explain if you want to know.

I could not resist taking the lid of the little box. The box contains a speaker, a meter, two switches and a circuit board with many components on it. The inside is designed so that if a part becomes defective, it can easily be replaced (i.e. it doesn't contain one of those rare ROMS found in your Commodore, usually costing a bomb to replace!)

DATALIGN works with all models of the datasette, even the C16/PLUS4 recorder. It works perfectly! Take my word for it! You don't even have to buy any batteries because DATALIGN runs off the computer.

The complete package includes your DATALIGN, a plug socket and detailed instructions. PLUS A FREE GIFT! Yes, you even get a little screwdriver, just the right size for aligning the datasette!

My only grouch is that I keep asking the question:

'Why didn't Commodore inbuild something like this into their datasette?'

No doubt this is an excellent piece of hardware that no Commodore user should go without. I suggest you buy this product with the money you would have spent on your favourite game, then you can be guaranteed that the game you buy will load!

DATALIGN
Price: $45
Supplier: DPW Enterprises, Dromana, Vic

PROMENADE FOR THE VIC 20 AND 64

Reviewed by Paul Markowski

The Promenade is an EPROM programmer which plugs into the USER PORT of the VIC 20 or 64. A manual and a cassette containing software suitable for the VIC and 64 is also supplied.

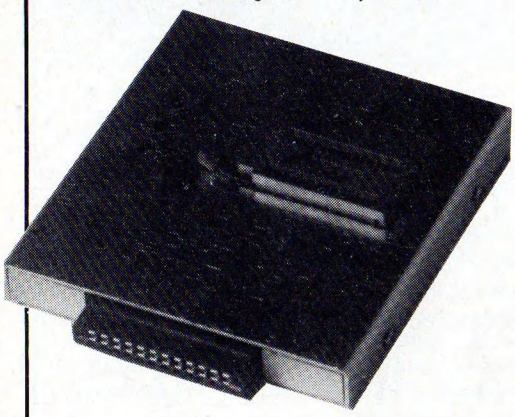
The programmer consists of an aluminium case with a double sided 12-way connector at one end for the USER PORT. On top of the case is a ZIF (zero insertion force) socket and 3 LEDs (light emitting diodes), green to indicate that the Promenade is receiving power, red to indicate that the ZIF socket is energised, and yellow to indicate that the Promenade is writing to (programming) the

EPROM in the ZIF socket. The yellow LED will also flash if an error has been encountered.

The Promenade plugs easily into the USER PORT and sits quite steadily on four little plastic legs. The ZIF socket makes it a snap to insert and remove EPROMs by operating a little lever which clamps and unclamps the chips.

The ZIF socket is a 28 pin model so it will accept all EPROM sizes currently available (right up to the 27256, a 32k EPROM).

The Promenade Programmer–by EPROM



SOFTWARE.

As we all know, a piece of hardware is of little use unless there is some software to drive and make it easy to use. This is what makes the PROMENADE shine. The software provided, called PROMOS (a version for the VIC and one for the C-64), completely integrates all PROMOS commands with the VIC and 64 operating systems.

When loaded PROMOS uses up just over 2k of sytem RAM. With most EPROM programmers I have seen, you can transfer data to and from the EPROM and not much else. With PROMOS you can set up a complete filing system and use the PROMENADE like a disc drive. The following BASIC commands are supported:

SAVE
LOAD
OPEN
GET#
INPUT#
PRINT#
CMD#
CLOSE

The PROMENADE is treated as device 16, and there are one or two additional parameters you must provide in most commands. The SAVE and LOAD commands are very similar to those used for the disc drive.

However, with the SAVE command you must specify a CONTROL WORD (CW) to tell PROMOS what type of EPROM is in the PROMENADE, and a PROGRAM METHOD WORD (PMW) to tell PROMOS what type of programming algorithym to use when writing to the EPROM.

The OPEN# command also requires the CW and PMW as PROMOS stores these away in a file table so that it will be able to handle any PRINT#, GET#, INPUT# or CMD# commands for that file. The format of the SAVE and OPEN commands are:

SAVE "<name>:CW",16,<PMW>
OPEN <file no>,16,<PMW>,"<name>:<CW>"

When writing to an EPROM, PROMOS can use one of four programming algorithyms to ensure a particular byte in the EPROM has "blown" or "taken" properly. Standard programming calls for a programming pulse of between 45-55 milliseconds duration to ensure valid writes.

PROMOS can also use three intelligent methods for programming. What PROMOS does is writes to the EPROM and then supplies a pulse of a certain duration (depending on the PMW you have chosen), it then reads back the byte and checks to see if it has "taken". If it hasn't it writes the byte back to the same location and supplies a slighlty longer programming pulse.

This cycle is repeated until either the byte "takes" or the EPROM is determined to be unprogrammable (this will depend on the length of the pulse supplied and the PMW you choose). Once the byte has taken a "margin" pulse is supplied which is some multiple of the total duration of all preceding pulses (the margin again depends on the PMW).

The "margin" pulse is used to ensue that the byte will be reliably held for an indefinite period. This "intelligent" method of programming is much faster than the standard 45-55 millisecond method.

The manual supplied has a table of CW's and PMW's listed for all the EPROMs the PROMENADE can handle, and gives suggested PMW's for all EPROMs.

When you see this table you will realise just how versatile the PROMENADE is as it can not only handle EPROMs (eraseable programmable read only memories), but can also program and erase EEPROMs (electrically eraseable programmable read only memories), as well as programming EAROMs (electrically alterable read only memories). The table contains no less than 21 devices.

All BASIC PROMOS commands can be used either directly or from within a BASIC program. If this all sounds great, there's more. PROMOS also provides additional special commands for working with the PROMENADE. These special commands can only be used in direct mode and must start as the left-most character on the screen line, or a syntax error will result. The commands are:

$ – directory of all files in current EPROM including space used
Z – deactivate the ZIF socket to enable safe removal and insertion of EPROMs. PROMOS termonates with this command automatically
(sh)E – shifted "e", a command to erase a 48016P EEPROM (elecrically eraseable programmable read only memory)
↑ – command to program from memory to EPROM
£ - command to read data from EPROM into memory
(sh)S – shifted "s", a command to create a program file in EPROM from data held in memory
(sh)L – shifted "l", a command to load a program file from EPROM into memory

All of the above commands require a CW and the ones which write to EPROM require a PMW.

Additional features available through PROMOS include provision for flagging non-relocatable program files and a method for write protecting files.

PROMOS will work with most machine code monitors and the ones specifically mentioned in the manual are HESMON and HESMON64. There are some warnings to be heeded when using PROMOS with these MONITORS. PROMOS is not compatible with the DOS WEDGE as they both use some common zero page locations, and the manual makes some suggestions for getting around this. Information is also supplied on separate sheets about creating "auto-start" cartridges for BASIC programs.

OPERATION

After plugging in the PROMENADE and turning your computer back on, you will see the three LEDs light up. This is normal, however, before inserting an EPROM you must load PROMOS and execute a "Z" command to deactivate the ZIF socket.

This will exstinguish the red LED. The PROMENADE's performance is pretty astounding. If you are tired of the slow loading of your 1541 disc drive then the PROMENADE is for you. I conducted some timings using a 1762 byte BASIC program and a 2716 (2k) EPROM.

I specified PMW of 7 which used an initial 0.1 millisecond programming pulse and then doubled the pulse duration until the byte had "taken". A pulse of length equal to the sum of all preceding pulses was the applied as a "margin" pulse. The following are the results:

COMMAND	PROMENADE	CASSETTE	1541 DRIVE
SAVE	12 secs	43 secs	8 secs
LOAD	< 1 sec	43 secs	8 secs

As you can see the PROMENADE wins the LOAD race hands down. It is quite evident that "intelligent" programming does save a great deal of time. If "standard" programming had been used, the same 1762 byte program would have taken nearly 90 seconds to SAVE. At the above rates it would take you approximately 56 seconds to totally program an 8k EPROM using the "intelligent" method and nearly seven minutes using the standard method.

CRITICSMS

I turned to page one expecting a "how to get started" guide and couldn't find one. It was

on page 17 at the back of the manual after all the command explanations. The manual could do with an index or table of contents.

It also failed to mention that you should turn your computer off before installing the PROMENADE (a good idea when attaching any peripheral). To be fair the manual does contain all the information you'll ever need and more. It's just that it isn't particularly well laid out.

The other criticism is about PROMOS not accepting hexadecimal for memory addresses (a handy system when using machine code), although the manual states that future releases of PROMOS are likely to incorporate this option.

CONCLUSION

At a price of $199 the PROMENADE certainly has a lot to offer. The manufactures, the JASON-RAHEIM COMPANY have done a great job with the hardware and the software. A pity the couldn't score 100% and get the manual right as well.

Price: About $199
Distributor: Lion Electronics Midland Perth

PRINT SHOP

Review: Michael Spiteri

This new program from Broderbund Software has to be seen to be believed. It is available to anyone who owns a printer (any graphic type, if you have the right interface). Two copies of the program are included in the package, one that will run one an 801/1526 printers and one that will run on another type of printer.

What does the program do that makes it so good? You may ask. It does the following things:

a) Prints greeting cards.
b) Prints posters.
c) Prints letterheads.
d) Prints large banners.
e) Prints graphic kaleidoscopes.

BIG DEAL! You reply, but what is so special about that?

The program does the whole thing in Style, that is Style with a capital 'S'.

Whatever thing you decide to print, you are given the following options:

a) eight different styles of writing (see examples).
b) nine different borders.
c) Over 40 different graphics shapes (see examples).
d) Option to design your own graphic characters.
e) Can print graphics in three different sizes.
f) Can print writing in 3D, block or lined (see examples).
g) Can print writing large or small.
h) Can centre writing/graphics any way you wish.
i) Has full editing facilities.
j) Has save option.

Just seeing these appear on the printer is amazing. If you saw an example of a printout, you would be forgiven for mistaking it to be designed by a professional, qualified press.

Samples showing some of the variations available with the PRINT SHOP program.

Let's go through the things that can be done with PRINT SHOP:

a) GREETING CARDS: design your own greeting card. You decide what graphics you want in it, what size and where they go. You decide on the border you want for the inside and outside. You decide on the style of writing you want, whether it is 3D or not. Enter any message you want. You can even give yourself credit on the back! The printout is then folded into quarters and presto! there is the greeting card!

b) SIGN: design your own sign/poster, same options as the greeting card. You can even determine the size of the writing.

c) LETTERHEAD: imagine, your own personalised stationery for the price of a piece of paper! With graphics! With your address! With seperating lines! With the lot!

d) BANNER: I didn't try this one out because it would use all the ink from my ribbon. You can design super large letters, as long as you wants, with super-sized graphics! Does hell to your printer ribbon, though.

e) SCREEN MAGIC: A kaleidoscope of absolutely outstanding graphics appear on your screen at random, you can put your own styles of writing on it and print it out! Wait till your friends see this!

f) GRAPHIC EDITOR: If the graphic's character you are after is not on the huge list available, design your own! Full editing facilities.

g) SET-UP: For those using other that Commodore printers, this helps you set up your printer to be used with PRINT SHOP.

The graphics are very realistic, and the 3D effect on the writing is very flashy.

A comprehensive manual is supplied, and it is essential. I was one of those eagers who didn't bother do read the manual and I got off lightly! The manual is well set out and very easy to read and understand. The manual is also bursting with examples.

I believe this program is good value for anyone who owns a graphic printer (such as the 801/1526/epson etc.). It is a fantastic program, I found no bugs, and cannot think of any grouches against it.
Highly Recommended!

PRINTSHOP
By Broderbund software
Price: around $50
Available from most Commodore Dealers.

THE WORLD-LINK INTERFACE VIC20 and C64

Reviewed by Paul Markowski

The World-Link is an interface board for the VIC 20 or C64 which plugs into the USER PORT and provides 4 inputs for detecting current flow in a 240 volt A.C. supply line (eg when an appliance has been turned on) and 4 outputs for controlling devices connected to the 240 volt A.C. mains with your computer. The World-Link is constructed on a printed circuit board, with a ribbon cable and 12 way connector for plugging into the USER PORT.

There are 8 two pole terminal blocks along the outer edge of the printed circuit board for connecting to the 240 volt AC line (4 inputs and 4 outputs). The 240 volt power lines are isolated from your computer by devices called opto-couplers, which essentially detect or trigger currents by optical means rather than running the risk of having 240 volts connected directly to your computer (a nice mess that would make).

There are also a series of LEDs (light emitting diodes) provided, one for each input and output, to allow you to visibly check that the interface is operating satisfactorily. The actual switching of the AC supply is accomplished by 4 devices (1 for each output) called triacs. The ones provided are rated at 12 amps, however I would not recommend trying to run a device, drawing a full 12 amps as this would generate quite a deal of heat in the triac, and there is no heat sink provided for the triacs, for heat dissipation.

The documentation warns that only someone suitably qualified should connect the World-Link to the 240 volt supply and I tend to agree. If you made a mistake the results could be disasterous. The World-Link as provided comes as is, with no enclosing case, and when in use, must be fully enclosed to prevent prying fingers from getting at the 240 volt supply.

Software and Documentation

The documentation provided with the World-Link is really quite scant. It consists of 2 sheets containing information on connection to the 240 volt mains, a short program to display the operation of the LED's on the board, and some suggestions on reading the inputs, and switching the outputs on and off. Both sheets have the warning message about the approved enclosure and qualified persons connecting up the World-Link (you are told twice, so be warned).

To use the World-Link, you must be familiar with the use of the USER PORT as a parallel port. In the VIC and the C64, this port has a register which controls whether each pin of the port (PORT B) is either an input or an output (each pin is independently programmable). This register, naturally enough, is called the Data Direction Register (DDR). The DDR is located at 56579 in the C64 and at 37138 in the VIC. For the World-Link you should POKE DDR, 240, to set its 4-7 as outputs and bits 0-3 as inputs. Now you are ready to use the World-Link. Port B in the C64 is located at 56577, while in the VIC its at 37136. The documentation provided does not clearly explain how to turn the individual outputs on. You must set the corresponding bit in PORT B to one to turn an output on, and back to 0 to turn it off. As the outputs are the high order bits of PORT B, the following applies:-

POKE PORTB,16 to turn on output 1 and turn off all others
POKE PORTB,32 to turn on output 2 and to turn off all others
POKE PORTB,64 to turn on output 3 and turn off all others
POKE PORTB,128 to turn on output 4 and turn off all others

The documentation fails to mention that the above POKEs will also turn off the other outputs (a 0 turns an output off). So what happens if you have outputs 1 and 2 already on and want to turn on output 4. Easy, you logically OR the contents of PORTB with the value needed to turn on output 4 eg.

POKE PORTB,(PEEK(PORTB)OR128)

Read the inputs to see if anything has been turned on, you must read the low order bits of PORTB. To do this you must use the following formula provided in the documentation:-

X=PEEK(PORTB) OR 240: X=NOT X-256

and then test the value of X as follows:

X=1 means only input 1 is on
X=2 means only input 2 is on
X=4 means only input 3 is on
X=8 means only input 4 is on

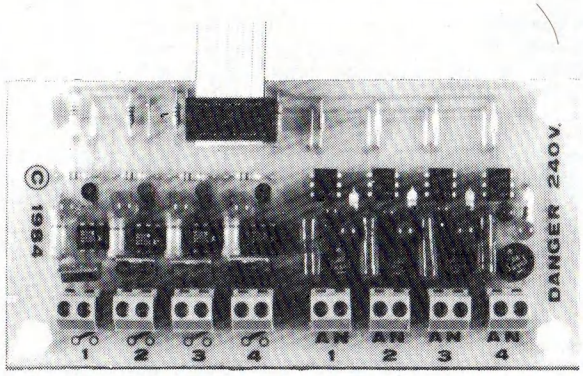
If X is not one of the above, then a combination of inputs is on,ie if X=10 then inputs 2 and 4 are on.

Conclusion

The World-Link is well constructed and easy to use from within a BASIC program. Only your imagination would be the limit to what this interface could be used for. Applications that spring to mind would be a computer controlled home security system or having your computer turn your lights and T.V. on and off at the appropriate times while you were on holidays to deter thieves. There must be quite a few VIC 20s out there gathering dust, just waiting for an interface like this (how many 64 owners have a VIC in the closet).

Just think, a dedicated home computer controller. This interface is another example of a good product let down by sketchy documentation. I think it would have been a good idea to list some of the critical components used in the World-Link and their specifications so that someone qualified could ascertain its limitations. A few more programming examples would not have gone astray either.

The World-Link is an Australian product made by Chatron Industries P.O. Box 321 Mount Gambier S.A. and retails for approx. $87.50.



World Link Interface

IT'S ALL A MATTER OF TASTE

Some people like two buttons, others like to have one on the end. Left-handers will take anything they can use. As I say, it's very individual.

What is? Joysticks, as it happens. No matter what I might think of any particular device, the old rule is still a good rule – try before you buy. But make sure a Sure Shot is one of the ones you test.

The Sure Shot Joystick

Sure Shot makes joysticks for most popular home computers, including Atari, BBC and Sinclair. By now, they must know a thing or two about public preference. They have certainly gone to some pains with this design.

The casing is high impact ABS, so physical onslaught when you crash your favourite game is pointless. Better still, little Jason or Mandy will have less chance of wrecking it. The more usual simple plastic coated printed circuit boards switch arrangement has been replaced with positive action micro-switches, which have a very nice feel. The eternal clicking did get a bit wearisome, but that's of no consequence.

In operation, the unit performed nearly faultlessly. The usual test on Jampman's ladder went like a breeze. Using Doodle, my only problem was an occasional reluctance to draw in the south-west quadrant. If the unit had been mine, I would have attempted a minor adjustment to fix this up.

Movements did not require large handle deflection, but there was good sensitivity for fine control.

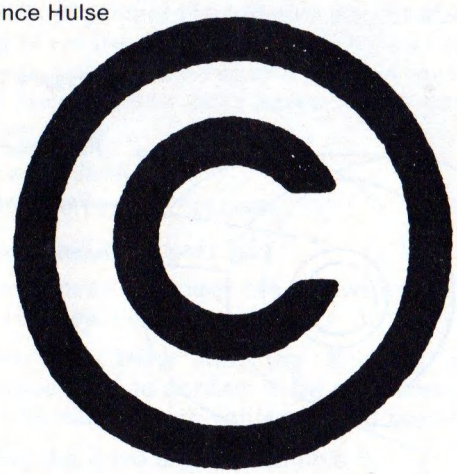
As a left-hander I appreciated the dual fire buttons. My usual preference is for a button on the handle, but in the absence, this style suited me just fine.

The younger fry also gave it a long test. Summer Games came and went, with Megan and James happily pole vaulting and leaping about the gym mat. The older A... joystick was abandoned, Sure Shot was it!

Product: Sure Shot Joystick
Distributor: Dolphin Computers Pty.Ltd.
Artarmon N.S.W. 2064

PROGRAM PROTECTION

by Lawrence Hulse



That program you have just completed which will make your Commodore faster than a speeding mainframe and able to leap 'apple' trees in a single bound needs protection. So do it right with copyright.

June 1984 is a turning point in Australian copyright law. That is when the Copyright Act was amended to include source codes (whether written on paper or committed to disc) as a literary work.

Copyright is automatic. It requires no deposit, registration or anything else. Copyright is instant the minute it is committed it to any form which the Act calls 'a material form'. Even the (C) is not required under Australian law, but it is under American law.

Mr Philip N Argy, President of the NSW Society for Computers and the Law, and a partner in the national law firm Stephen, Jaques, Stone James, said, "Copyright derives simply by virtue of a person having created an original work and put it in any form from which it could be reproduced."

SPECIAL CASES

So, copyright is vested in an author the minute a program is created. But what if a sub-routine is used, which is not an original creation of the program's author?

hor had the right to use the sub-routine, and provided that it is not a majority of the final program."

If the author wrote the program as part of their employment, then copyright is vested with the employer. "But, in any other case, including the case where the programmer is an independent contractor, copyright will be the programmer's," Mr Argy said.

A fundamental difficulty in enforcing copyright is the ability to prove that the author was the FIRST person to write the program.

Mr Argy: "It is a straight question of proof as to who copied whom, because under copyright law the only thing which is prohibited is copying. Copyright has not be breached if two people, independently, create the same thing. Neither of them has any right of action against the other, unless one can prove the other had copied the material.

"The Courts will first compare the two works, on the assumption that physical similarity combined with evidence of access allows a strong presumption of copying. There is nothing magic about it. It's a question, ultimately, of who is in fact believed by the Court," he said.

Vital to any copyright case is having independent means of proving when the material was created. This documentation, including date and time when the program was created, is important to be able to prove the program was written before the other person's material.

Mr Argy: "One possibility is to lodge a hard copy of the program and its source listing with a solicitor, and noting the date and time it was lodged. In the event of some dispute, it will enable the author to show what the solicitor received at that day and time. So if the person seeking to challenge the copyright can't prove their's was created prior to that time, then it would be pretty good proof that the author did not copy the program."

NO HELP IN TRADEMARKS OR PATENTS

Trademarks and patents are not relevant to protecting a program. A trademark only protects a name or emblem associated with a product. The Australian Patents Office takes the view that most software is not patentable, but if an algorithm or a process is incorporated into some software then patent law may apply.

"The beauty of copyright is that, even though notionally it lasts for the life of the author plus fifty years, it doesn't matter that material which is no longer commercially viable has copyright, because if the material is useless the author will not bother to enforce his copyright, and if it is useful then the Copyright Act gives the protection the author needs," Mr Argy said.

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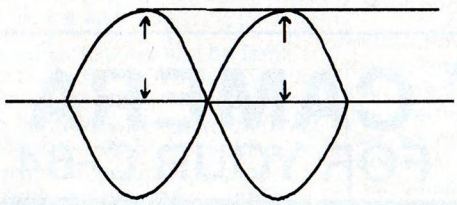
1541 DISK DRIVE ALIGNMENT

by Owen Davis

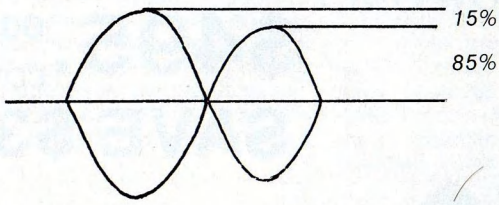
It is possible to do a pseudo alignment of your 1541 disk drive. Do NOT attempt to align your drive if it is still under warranty as your warranty may be void. Do not attempt to align your drive unless you have established that it requires alignment – excessively numerous adjustments will damage your drive. A lack of care while doing it may damage your disk drive. If you are careful and patient you may be able to save yourself the cost of a professional repair.

If it is possible to align your drives without any equipment why do service agencies spend hundreds of dollars on equipment to do the same job? The equipment required is an oscilloscope, an alignment program and an alignment disk. With this equipment it is possible to ensure that the alignment is within tolerance i.e. plus or minus 15% difference (see figure 1).

It is possible to ensure that the bump stop is correctly adjusted. The alignment disk is an especially recorded disk (see figure 2). Note that the Commodore alignment disk is not the same as those for other drives since it has format marks written to it because the Commodore drives do not use the sectoring hole.



If the drive is perfectly aligned the pair of cat's eyes are of equal height.

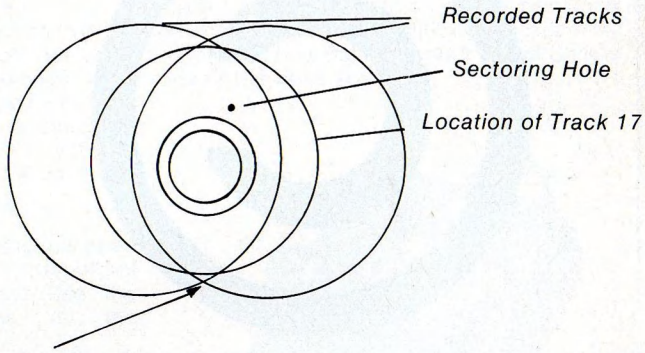


A drive with maximum allowable difference. With a scope it's generally possible to get it within 5%. The method in the article with probably get it within 15%.

Figure 1

To determine whether your drive needs aligning. Load 'Performance Test' from the 'Test Demo Disk' which came with your drive. You will need a scratch diskette which can be erased for the program. Note when loading the program if the red light on the front of the drive is steady or flashes. Listen carefully for a click when the drive tries to write to or read from track one. If the light is steady while loading the program and there is no click then your drive's alignment will probably not be improved by the method outlined below.

Figure 2



This point and the one opposite produce the cat's eyes on the scope.

Read these instructions carefully and make sure you understand them before continuing.

1) Find a dry, solid and uncluttered place to work.

2) In addition to the disks mentioned above you will need a medium sized, unworn Phillips (crosshead) screwdriver and a largish jewellers screwdriver.

3) Unplug the disk drive from the computer and the power at the disk drive end.

4) Turn the drive upside down and undo the four screws in the bottom of the unit.

5) Turn the drive right way up, being careful not to lose any screws. I prefer do this part of the operation over my bed so the screws don't bounce around.

6) Gently lift the top off and put it in a safe place where it won't be broken.

7) Locate the red and black wires going from the green power light to the printed circuit board (pcb). Note where it came from – you have to put it back.

8) The drive and pcb are attached to a metal shell which is attached to the case by six screws – remove them.

9) Lift the metal case out of the plastic bottom by holding onto the metal or the front of the drive NOT by grabbing the pcb.

10) Turn the bottom of the case over and insert one of the metal tabs into the slot nearest the front. The drive/pcb unit should stand upright without further support.

11) Locate the two screws on either side of the stepper motor (figure 3). Carefully scrape away the green glue with the jeweller's screwdriver. Be careful not to damage the wires if you don't want to buy a new drive.

12) Loosen the screws with the Phillips head screwdriver (no more than three full turns) and rotate the stepper motor fully clockwise (about 5mm).

13) Reconnect the drive to the computer and power. DO NOT touch any parts which may carry power. Turn the disk drive on.

14) Insert the scratch disk and validate it.

OPEN1,8,15, "V0":CLOSE1

15) When in alignment the red light should stay on with no flickering. Move the stepper motor as little as possible until the light remains steady. You may need to validate the disk several times. Tighten both screws – be careful not to overtighten them.

16) Format a blank disk.

OPEN1,8,15, "N0:TEST,TE":CLOSE1

Again there should be a steady light.

17) You may need to loosen the screws and retry steps 14 through 16 a few times.

18) When you think that the drive is aligned run 'Performance Test' to confirm it. Be sure that both track 1 and track 35 can be both written to and read from.

19) Unplug the drive and reassemble it.

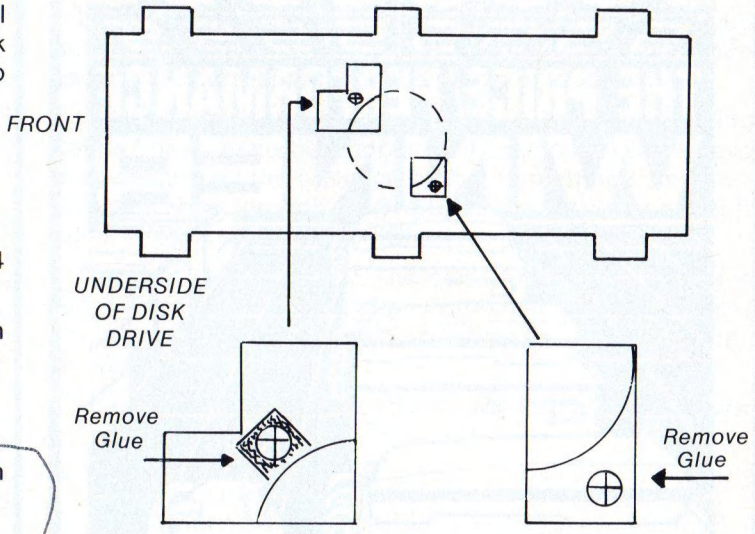


Figure 3

Another way of checking the drive alignment is to type in the following:

OPEN15,8,15,"M-W"+CHR$(106)+CHR$(0)+CHR$(1)+CHR$(193): CLOSE15

and press RETURN

Then type: LOAD"$",8 and press RETURN

If the directory loads first time then your drive is probably aligned correctly as you have prevented the drive performing retrys.

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The New Machines Part 3

by Paul Blair

This part of our tour through Basic 3.5 will look at some very interesting commands – not that they are spectacular in themselves, but they form the core of a new direction in Commodore Basic – user convenience. A couple of examples to warm you up.

Although Basic 3.5 has no allowance for sprites, sound (albeit limited) and colour no longer need tortuous commands. Colour (Basic uses the American spelling, COLOR) controls not only colour but luminance, which is the brightness of the colour. This works with every colour but black, as you would expect. Syntax is COLOR A,B,C – where A is the area (background, character, border, and multi-colour), B is the colour number (1 to 16), and C is luminance (0-7), where 7 is brightest. This peculiar numbering is annoying, because if you should happen to want to revert to screen POKEs for any reason, you must use colour values from 0-15!!

Although limited, Basic 3.5 can make a limited number of sounds. Two keywords control noise – VOL and SOUND. VOL followed by a number 1-8 acts as VOLume command. VOL effects all voices.

SOUND controls the note. Syntax is SOUND V,N,L. V is voice (1 is tones, 3 is noise and 2 allows a mix), N is note, and you must calculate or look up the value. 4 octaves are covered (110 to 1575 Hz) which is not too bad. L is note duration, anything from 0 to 65535. Roughly, putting 60 in L gives a note of 1 second.

We will come back to graphics later. In the meantime, let's look at some interesting inclusions that form what some people term the "structure" family. The commands include DO, EXIT, UNTIL, WHILE and LOOP. DO and LOOP form the boundaries for this very powerful group. You may have seen these commands on other computers, but this is the first on the popular range of Commodore computers.

DO commands everything between it and LOOP to continue to occur, unless some condition is met, usually written with an UNTIL or WHILE acting as control. The most simple use of this would be:

```
200 DO:PRINT "HELLO":LOOP
```

An endless loop. Modify it to:

```
200 DO:A=A+1:PRINT"HELLO"
210 LOOP UNTIL A=150
```

As soon as A=150, the loop will end. WHILE and UNTIL are virtually opposite controls. WHILE maintains the action as long as the condition is maintained, UNTIL waits for the condition to be realised.

The full syntax of this most useful inclusion is given as:

```
DO [UNTIL, arg WHILE,arg] statements [EXIT]
LOOP [UNTIL, arg WHILE, arg]
```

where "arg" is a Boolean argument, such as X=10 or H<>44. DO loops may be nested along lines similar to FOR-NEXT loops.

Another powerful new facility along these lines is IF-THEN-ELSE. IF-THEN has always been in Commodore BASIC, but it was the main trap for young players. How many of you have put an IF-THEN in a program, and put some other critical statement after it? The program has fallen out of the IF-THEN, and the critical statement has not been executed. I know I have!

IF-THEN had only two possible outcomes. IF the statement was true, processing continued on the same line IF X=1 THEN Y=4: PRINT "OK". If X was 1 then OK was printed on the screen. If X was not 1, action fell through to the next executable line.

ELSE gives another option – a third choice. ELSE lets you detect that the IF statement is false, and you can then specify the correct path for the program to follow.

PRINT USING and its companion PUDEF ("print using define") have finally been included. Commodore users have long bemoaned the absence of this formatting command, but when I look through the BASIC 3.5 code, I can see why. It takes a lot of space in BASIC!

The idea works like this. The command PRINT USING is followed by some combination of the nine available format characters, then the values or variables you want to format. An example would be best.

The value of X is 13.142 and we will format it as follows:

```
PRINT USING "###";X
will print 13
PRINT USING "##.##";X
will print 13.14
PRINT USING "$##.##";X
will print $13.14
PRINT USING "##.#-"
will print 13.1+
```

Values, variables and strings may be used, with some straight-forward rules. You can add leading and trailing zeroes, signs, use E+ format, add commas into long numbers (eg 546,834) and centre or right justify fields in a column. If you have experimented with Commodore printer formats, much of PRINT USING will come easy.

The PRINT statement can also be PRINT#[filenumber] USING, so any output can be directed to a printer. I have not tested this using a non-Commodore printer, but as the formatting is done in the computer, not the printer, all you "other printer" users should be able to take advantage of PRINT USING.

PUDEF is an extension, allowing you to define up to 4 of the PRINT USING character set. If you want a row of "filler" characters (to print $####13.22 instead of $ 13.22) or want to change the dollar sign to a pound sign, then PUDEF is the command to use.

INSTR extends the string functions by allowing partial matching of strings. If you have defined A$="GOTOFREDDY" and are looking to see whether "FRED" appears in A$, then PRINT INSTR(A$,"FRED") will give you "5", because that's where "FRED" starts. The point of this command is a bit lost on me, but I'm sure there are many uses.

Error trapping and analysis soothes programmers fevered brows, and Basic 3.5 provides some cool water just for this. Trapping works by specifying a line (probably set up just for the purpose) by TRAP [line#]. If you set TRAP 999 early in your program, then set a special line:

```
999 PRINT EL : PRINT ERR$(ER):RESUME NEXT
```

you will get the error line (EL) and the error condition (ERR$(ER)), then the program can RESUME at the next statement. You could RESUME 300, if you want to go to line 300. RESUME on its own will attempt to re-execute the original line again, but that seems less useful.

As noted earlier in this series, the Plus/4 and C16 have a new style set of graphic commands. The last part of this series will tell you about them.

EPROM PROGRAMMER FOR THE VIC 20

If you've ever desired a reasonably priced EPROM programmer then your prayers have been answered. The MICROBEE EPROM PROGRAMMER which is available in kit form from Jaycar Electronics or Altronics Components by mail order can be easily adapted to work with your VIC 20 computer via the user port.

Because this programmer uses an on-board address generator and hardware timing for the programming pulse, the control lines required from the VIC consist of only the eight address lines and a strobe output to trigger the EPROM programmer's address generator.

First a little explanation of about what EPROMs are. Essentailly EPROMs (Eraseable Programmable Read Only Memories) are like the ROMs (Read Only Memories) which reside inside your Commodore. They can only be read and not written to when used in this way, however with the right sort of equipment an EPROM can be easily written to and hold data for indefinite periods.

They also have the added advantage that they can be erased of the information they hold by exposure to ultra violet light (hence the little window you will find in all EPROMs).

EPROMs come in sizes from 2K to 32K and the MICROBEE EPROM programmer can handle sizes from 2K to 8K, these being the more cheaper varieties available at present.

When first purchased or freshly erased an EPROM will contain a pattern of all 1's (FF hex). To program an EPROM some of the 1's in a particular byte must be "blown" to 0 and to accomplish this the following must happen:-

1. the output enable pin must be high (+5 volts) to enable data to enter the EPROM
2. +25 volts (in some cases +21v) must be applied to the program power supply pin of the EPROM
3. the address to be programmed must be presented to the address pins of the EPROM
4. the data to be programmed into the EPROM must be presented to the data pins of the EPROM
5. and a 50 millisecond pulse must be applied to the to the program pin of the EPROM to "blow" the data into the EPROM.

Sounds very complicated, but it isn't really as all this is taken care of by the hardware supplied with the kit.

Hardware Modifications

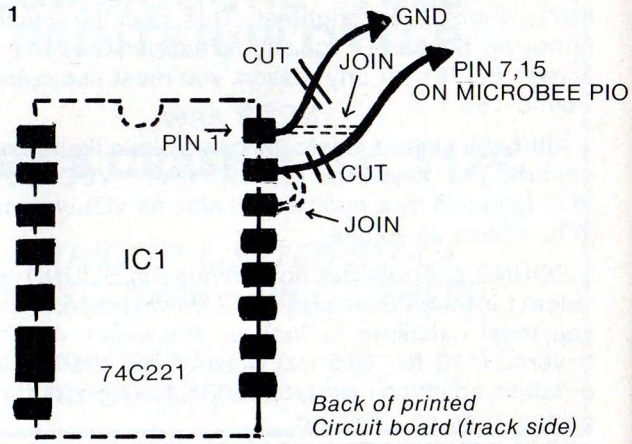
The only extra item which is not supplied with the kit is a 12-way double-sided connector (type AMP 530657-3 or TEKA tp3-121-E04) for the USER PORT. The programmer goes together as described in the instructions included with the kit, with the following modifications:-

1. IC1 (a 74C221)- cut the tracks going to pins 1 and 2 of this IC. Connect pin 2 of IC1 to pin 3 of IC1. Connect the track that was going to pin 2 of IC1 (the one you cut) to pin 1 of IC1 (see diagram 1 for details).
2. resistors R1 to R8 are replaced with wire links.

As the software designed for this project takes advantage of the faster reading modification mentioned in the kit's instructions, you must build the programmer with this modification. If you desire to program 8k EPROMs you should also add the extra components to enable you to select between the top and bottom 4k of an 8k EPROM.

Leave the connection of the 12-way connector until last as we are going to use this to enable us to measure the programming pulse. Set the programmer up as indicated in the section "Check Out and Set Up" apart from the pulse measuring instructions.

Diagram 1



Now comes the cunning part. You didn't realise that your VIC could accurately time 45-55 millisecond pulses did you (who needs a $600 oscilliscope). Type listing 1 and save it. Now wire up your 12-way connector so that when inserted in the USER PORT the wire shown as going to pins 7 and 15 of the MICROBEE's PIO port, in the diagram, is going to pin M on the VIC's USER PORT. Connect pin L on the VIC's USER PORT to pin 15 of the programmer's 16 pin personality socket.

Turn your computer off and insert the connector in the USER PORT making sure it's the right way around. Turn on your computer and the EPROM programmer, then load the program in listing 1 and run it.

If you've entered the software correctly you will be told whether the programmming pulse is either too long, too short or within the 45-55 millisecond limit. If the pulse is too short you will have to increase the size of capacitor C2 (up to 120n or 150n) and try again.

If the pulse is too long you will have to decrease the size of C2 (down to 82n or 68n). Once the pulse is set correctly you will be able to make the final connections to the 12-way connector. The connections are listed in Figure 1.

Software

The software provided for the VIC will allow you to:

1. program an EPROM from memory
2. read data from an EPROM into memory
3. step through the EPROM 'n' number of bytes.
4. test 'n' number of EPROM bytes for erasure (see if they are all FF)
5. verify data in an EPROM with data residing in RAM or ROM in your VIC

Figure 1

EPROM PROGRAMMER		USER PORT
pin 8	(GND)	N (GND)
pin 7 & 15	(STROBE)	M (CB2)
pin 13	(from R1)	C (PB0)
pin 5	(from R2)	D (PB1)
pin 12	(from R3)	E (PB2)
pin 4	(from R4)	F (PB3)
pin 11	(from R5)	H (PB4)
pin 3	(from R6)	J (PB5)
pin 10	(from R7)	K (PB6)
pin 2	(from R8)	L (PB7)

The above pin outs for the EPROM PROGRAMMER refer to the MICROBEE PIO port shown in the kit's diagram.

The software is designed to work with a VIC with a minimum of 8k additional RAM in BLOCK 1. This has been done for two reasons. First, the software consists of a BASIC program with machine code drivers to handle the USER PORT and HEX display, and a fixed memory configuration is easier to handle for non relocating machine code.

Second, the extra RAM is useful for reading in EPROM data and if you have a machine code monitor you can treat all RAM above address $1E00 (7680 decimal) as a buffer for editing and assembling machine code to be programmed into EPROM.

For those without a machine code monitor (I strongly recommend you aquire if you are programming EPROMs) I have included listing 2 to create the machine code portion. Make sure you type it in correctly and when finished save it IMMEDIATELY as it self-destructs part of the data statements when run.

Place a fresh cassette in your datasette and run the program. You should see "LOADING" followed by "RELOCATING" on the screen and then the "PRESS PLAY ON TAPE" prompt. After saving the machine code you are ready to type in the BASIC front end. Turn your computer off and then on and type in listing 3. You must make sure that the program goes in as listed as the machine code will load straight after the end of BASIC. After saving this program load the machine code with the following command LOAD "CODE",1,1 (if you used the BASIC program to generate the machine code or LOAD "<your file name>",1,1 if you used a monitor. The 1 option ensures the machine code loads to the correct address. Now type RUN and a menu should appear on the screen.

Test the various options to make sure the all work. Be careful with the read option, that you don't overwrite some delicate part of RAM (like ZERO page).

You should see the hex address rolling over in the right upper corner of the screen (you will note STEP and TEST count down to 0000). All addresses must be entered in HEX with leading ZEROES if necessary (eg 00F5).

A word about STEP – the number of bytes you specify is the number of bytes stepped OVER in the EPROM (if you tell the program to step 5 bytes, you will be left pointing at the 6th byte). I suggest you purchase a couple of 2716 EPROMs to experiment with.

You will need to wire up a 2716 personality plug as outlined in the kit instructions. I used the COMMODORE MONITOR when developing the software and it has some funny quirks.

Don't use the cursor keys to scroll through the various commands as this will destroy the BASIC program you have in memory at the time. Otherwise this monitor is fine for checking EPROM data read into memory etc.

If the program checks out OK you can save the lot (BASIC and machine code) by just typing SAVE "VICPROM". The next time you load "VICPROM" the machine code will load right along with BASIC.

A word of warning....don't attempt to change the BASIC portion of the program as this will corrupt the machine code portion.

Well I hope you have a lot of fun with your new EPROM programmer. The possibilities of making your own game cartridges may now become a reality. Next issue I hope to have finished the software to drive this programmer from the COMMODORE 64.

VICPULSE

```
5 POKE 55,250: POKE 56,25: PRINT "[CLR]VIC PULSE MEASURER":
  FL=6738:TL=6693:TH=6704
10 FOR X=6650 TO 6737
15 READ N: POKE X,N: NEXT
20 POKE TL,23: POKE TH,238: SYS 6650: IF PEEK (FL)=8 THEN
   PRINT "PULSE TOO LONG": END
30 POKE TL,205: POKE TH,194: SYS 6650: IF PEEK (FL)=12 THEN
   PRINT "PULSE TOO SHORT": END
35 PRINT "PULSE WITHIN LIMITS"
40 DATA 72,138,72,152,72,120,169,0,141,18
45 DATA 145,169,31,45,28,145,9,160,141,28
50 DATA 145,169,221,45,27,145,141,27,145,169
55 DATA 40,141,30,145,141,16,145,162,28,202
60 DATA 208,253,169,23,141,24,145,169,238,141
65 DATA 25,145,169,32,45,29,145,240,249,173
70 DATA 16,145,16,12,169,8,141,82,26,88
75 DATA 104,168,104,170,104,96,169,12,141,82
80 DATA 26,88,104,168,104,170,104,96
```

VICCODE

```
10 POKE 55,0: POKE 56,40: PRINT "[CLR]LOADING"
20 FOR X=10240 TO 10793: READ A: POKE X,A: NEXT X
30 POKE 55,247: POKE 56,22: PRINT "RELOCATING"
40 B=5869: FOR X=10240 TO 10793: POKE B, PEEK (X):B=B+1:
   NEXT X: SYS 6373: END
100 DATA 32,48,49,50,51
101 DATA 52,53,54,55,56
102 DATA 57,65,66,67,68
103 DATA 69,70,72,138,72
104 DATA 152,72,169,221,45
105 DATA 27,145,141,27,145
106 DATA 169,175,45,28,145
107 DATA 141,28,145,169,8
108 DATA 141,29,145,32,33
109 DATA 23,104,168,104,170
110 DATA 104,96,169,0,141
111 DATA 18,145,96,169,255
112 DATA 141,18,145,96,173
113 DATA 27,145,41,223,141
114 DATA 27,145,169,32,141
115 DATA 30,145,169,23,141
116 DATA 24,145,169,240,141
117 DATA 25,145,32,79,23
118 DATA 169,32,45,29,145
119 DATA 240,249,96,165,247
120 DATA 160,21,32,94,23
121 DATA 165,248,32,94,23
122 DATA 160,0,96,141,237
123 DATA 22,162,0,24,32
124 DATA 240,255,173,237,22
125 DATA 41,15,170,189,238
126 DATA 22,32,210,255,162
127 DATA 0,136,24,32,240
128 DATA 255,173,237,22,41
```

continued overleaf

EPROM – continued

```
129 DATA 240,106,106,106,106
130 DATA 170,189,238,22,32
131 DATA 210,255,136,96,72
132 DATA 138,72,152,72, 32
133 DATA 39,23,160,0,165
134 DATA 248,197,250,240,19
135 DATA 177,247,141,16,145
136 DATA 32,45,23,230,247
137 DATA 208,244,230,248,56
138 DATA 176,233,230,247,177
139 DATA 247,141,16,145,32
140 DATA 45,23,165,247,197
141 DATA 249,144,240,32,33
142 DATA 23,104,168,104,170
143 DATA 104,96,72,138,72
144 DATA 152,72,32,33,23
145 DATA 160,0,165,248,197
146 DATA 250,240,22,173,16
147 DATA 145,141,16,145,145
148 DATA 247,32,79,23,230
149 DATA 247,208,241,230,248
150 DATA 56,176,230,230,247
151 DATA 173,16,145,141,16
152 DATA 145,145,247,32,79
153 DATA 23,165,247,197,249
154 DATA 144,237,104,168,104
155 DATA 170,104,96,72,138
156 DATA 72,152,72,32,33
157 DATA 23,165,247,240,10
158 DATA 141,16,145,32,79
159 DATA 23,198,247,208,246
160 DATA 165,248,240,6,198
161 DATA 248,208,238,240,236
162 DATA 104,168,104,170,104
163 DATA 96,72,138,72,152
164 DATA 72,32,33,23,165
165 DATA 247,240,17,173,16
166 DATA 145,141,16,145,201
167 DATA 255,208,17,32,79
168 DATA 23,198,247,208,239
169 DATA 165,248,240,27,198
170 DATA 248,208,231,240,229
171 DATA 169,14,141,14,144
172 DATA 169,128,141,13,144
173 DATA 32,45,23,32,45
174 DATA 23,169,0,141,14
175 DATA 144,104,168,104,170
176 DATA 104,96,72,138,72
177 DATA 152,72,32,33,23
178 DATA 160,0,165,248,197
179 DATA 250,240,24,32,79
180 DATA 23,173,16,145,141
181 DATA 16,145,209,247,208
182 DATA 32,230,247,208,239
183 DATA 230,248,56,176,228
184 DATA 230,247,32,79, 23
185 DATA 173,16,145,141,16
186 DATA 145,209,247,208,8
187 DATA 165,247,197,249,144
188 DATA 235,240,21,169,14
189 DATA 141,14,144,169,128
190 DATA 141,13,144,32,45
191 DATA 23,32,45,23,169
192 DATA 0,141,14,144,104
193 DATA 168,104,170,104,96
194 DATA 72,138,72,152,72
195 DATA 169,0,141,13,144
196 DATA 169,14,141,14,144
197 DATA 169,200,141,12,144
198 DATA 32,45,23,169,0
199 DATA 141,14,144,104,168
200 DATA 104,170,104,96,72
201 DATA 138,72,152,72,169
202 DATA 1,162,1,160,255
203 DATA 32,186,255,169,4
204 DATA 162,19,160,25,32
205 DATA 189,255,169,237,133
206 DATA 247,169,22,133,248
207 DATA 162,229,160,24,169
208 DATA 247,32,216,255,104
209 DATA 168,104,170,104,96
210 DATA 67,79,68,69
```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VICPROM-BAS

```
5 POKE 55,0: POKE 56,30: DIM B(4): PRINT "[BLK]"
10 SYS 5886:A=1: PRINT "[CLR]VICPROM BY P MARKOWSKI"
15 PRINT "COMMANDS ARE:-"
20 PRINT "[SPACE7,RVS]1[OFF,SPACE]- PROGRAM"
25 PRINT "[SPACE7,RVS]2[OFF,SPACE]- READ"
30 PRINT "[SPACE7,RVS]3[OFF,SPACE]- STEP"
35 PRINT "[SPACE7,RVS]4[OFF,SPACE]- TEST"
40 PRINT "[SPACE7,RVS]5[OFF,SPACE]- VERIFY"
45 GET A$: IF A$="" THEN 45
50 IF A=1 THEN PRINT "[HOME,SPACE23]"A=0
55 ON VAL (A$) GOSUB 100,200,300,400,500
60 GOSUB 600: GOTO 15
100 GOSUB 600: PRINT "PROGRAM": PRINT "[DOWN]EPROM
    PROGRAMMER SET[SPACE2]TO PROGRAM Y/N?"
105 GET A$: IF A$<>"Y" THEN 105
110 GOSUB 700: SYS 6028: RETURN
200 GOSUB 600: PRINT "READ": PRINT "[DOWN]EPROM
    PROGRAMMER SET[SPACE2]TO READ Y/N?"
205 GET A$: IF A$<>"Y" THEN 205
210 GOSUB 700: SYS 6086: RETURN
300 GOSUB 600: PRINT "STEP": PRINT "[DOWN]EPROM
    PROGRAMMER SET[SPACE2]TO READ Y/N?"
305 GET A$: IF A$<>"Y" THEN 305
310 GOSUB 800: SYS 6147: RETURN
400 GOSUB 600: PRINT "TEST": PRINT "[DOWN]EPROM
    PROGRAMMER SET[SPACE2]TO READ Y/N?"
405 GET A$: IF A$<>"Y" THEN 405
410 GOSUB 800: SYS 6185: RETURN
500 GOSUB 600: PRINT "VERIFY": PRINT "[DOWN]EPROM
    PROGRAMMER SET[SPACE2]TO READ Y/N?"
505 GET A$: IF A$<>"Y" THEN 505
510 GOSUB 700: SYS 6251: RETURN
600 PRINT "[CLR]": SYS 6339: PRINT "[HOME,DOWN]": RETURN
700 PRINT "START ADDRESS IN HEX": PRINT : INPUT B$:
    IF LEN (B$)<>4 THEN 700
705 GOSUB 900: POKE 247,(AD-( INT (AD/256))*256):
    POKE 248,( INT (AD/256))
```

continued on page 42

DIRECTORY

By Bryan Whelan

DISK DIRECTORY not only LISTs the directory but also gives you the option of selecting a program to automatically LIST, RUN and WIPE from your disk. Included are listings for both C64 and VIC-20

DIRECTORY C64

```
1 GOTO 3'BBMY
2 SAVE "@0:DIRECTORY C64",8: VERIFY "DIRECTORY C64":
  STOP 'DEOK
3 CLR : POKE 53280,5: POKE 53281,7: PRINT "[BLK]"'ERGH
4 DIM D$(90),C$(90),C(90)'BTEG
5 OPEN 2,8,15:H=1:V=1'DMIH
6 PRINT "[CLR]": GOSUB 10000'CGDG
10 OPEN 1,8,0,"$0"'BGSY
20 GET #1,A$,B$'BIYA
30 GET #1,A$,B$'BIYB
40 GET #1,A$,B$'BIYC
50 C=0'BCLC
60 IF A$<>"" THEN C(E)=ASC (A$)'GKCI
70 IF B$<>"" THEN C(E)=C(E)+ ASC (B$)*256'IRHL
90 GET #1,B$: IF ST<>0 THEN 200'FMQK
100 IF B$<> CHR$(34) THEN 90'FICY
110 GET #1,B$: IF B$<> CHR$(34) THEN D$=D$+B$: GOTO 110
    'JWJG
115 D$(E)=D$:E=E+1'DLEF
120 GET #1,B$: IF B$=CHR$(32) THEN 120'FPBD
130 C$(E-1)=""'CGNA
140 C$(E-1)=C$(E-1)+B$: GET #1,B$: IF B$<>"" THEN 140'JBAK
160 GET T$: IF T$<>"" THEN GOSUB 2000'GJAG
170 IF ST=0 THEN D$="": GOTO 30'FIAG
200 CLOSE 1: PRINT "[SPACE4]NO. OF PROGRAMS ON DISK ";E-1
    'DFWF
700 IF V>E THEN V=1:H=1'FHCG
780 FOR J=V TO E'DDML
800 PRINT TAB(4)"[RVS]" MID$( STR$(C(J)),2); TAB(7);"[OFF]";
    'FRSJ
810 PRINT D$(J);'BGOE
820 PRINT TAB(23);"[RVS]" LEFT$(C$(J),3)'DNTI
830 IF J=16*H THEN 6000'EIDJ
840 NEXT 'BAEG
1000 PRINT " BLOCKS FREE":K=1'CDRX
1010 GOTO 6000'BEDU
2000 IF T$="Q" THEN CLOSE 1: END 'FEGX
2010 GET T$: IF T$="" THEN 2000'EJMY
2020 RETURN 'BAQV
4000 REM DISK COMMAND'BLJY
4010 POKE 198,0'BFXX
4020 PRINT "[BLK,CLR,DOWN3]LOAD" CHR$(34)D$(F) CHR$(34)
    ",8,1"'DNOF
4025 PRINT "[DOWN4]"G$"[HOME]"'BCPE
4030 POKE 198,2: POKE 631,13: POKE 632,13'DTQE
5030 END 'BACA
6000 F=16*(H-1):H=H+1'FLOD
6004 S=1187'B FN D
6006 C=S+54272'CHUG
6007 IF (S>1827) OR (S<1187) THEN 6010'FSWL
6008 POKE S,102: POKE C,2'CJBJ
6010 P=PEEK (197)'CGGB
6020 IF P=30 THEN POKE S,32:S=S-40:F=F-1: GOTO 6006'JVYK
6030 IF P=18 THEN POKE S,32:S=S+40:F=F+1: GOTO 6006'JVDL
6034 IF P=39 THEN PRINT "[CLR]": GOSUB 10000:V=V+16:
    GOTO 200'ISFO
6040 IF P=9 THEN 8000'DGCF
6046 IF P=17 THEN PRINT "[CLR]":G$="RUN": GOTO 4000'GLIP
6048 IF P=42 THEN PRINT "[CLR]":G$="LIST": GOTO 4000'GLDR
6050 GOTO 6006'BEJE
8000 REM WIPE'BEUB
8005 POKE 198,0'BFXG
8008 PRINT "WIPE "D$(F)'BFPK
8010 INPUT "CONFIRM [Y/N]";Y$'BDFG
8012 IF Y$="N" THEN PRINT "[UP2]": FOR I=1 TO 44: PRINT " ";:
    NEXT : GOTO 6050'KPPN
8015 PRINT "WIPING ";D$(F)'BGXJ
8017 J$="S0:"+D$(F)'CHLL
8020 OPEN 1,8,15,J$'BJUE
8022 CLOSE 1'BBIE
8025 FOR T=F TO E:D$(T)=D$(T+1):C(T)=C(T+1):C$(T)=C$(T+1):
    NEXT 'KNAV
8028 H=H-1:E=E-1:F=16*(H-1)'HPQS
8030 PRINT "[CLR]": GOSUB 10000: PRINT "[UP]": GOTO 200'ELII
10000 PRINT "[SPACE2]U-SHIFT UP * ";'BBBU
10010 PRINT "D-SHIFT DOWN * ";'BBTV
10020 PRINT "R-RUN";"[SPACE9]L-LIST * N-NEXT PAGE";
    " * W-WIPE": PRINT 'CDDE
10200 A$="D": RETURN 'CDKU
19995 REM "[DEL][DEL10,DEL][DEL8,DEL][DEL6,DEL][DEL4,
    DEL][DEL]
20000 REM "[DEL11,SPACE14]PROGRAM BY
20005 REM "[DEL][DEL10,DEL][DEL8,DEL][DEL6,DEL][DEL4,
    DEL][DEL]
20010 REM "[DEL11,SPACE13]B[RVS]YA[TEXT,SPACE]W[LOCK,
    WHT]LA[TEXT]
20015 REM "[DEL][DEL10,DEL][DEL8,DEL][DEL6,DEL][DEL4,
    DEL][DEL]
20020 REM "[DEL11,SPACE10]DROUIN HIGH SCHOOL
```

VIC-20

```
 2 CLR : POKE 36879,125: PRINT "[BLK]"
3 DIM D$(90),C$(90),C(90)
4 OPEN 2,8,15:H=1:V=1
5 PRINT "[CLR]": GOSUB 10000
10 OPEN 1,8,0,"$0"
20 GET #1,A$,B$
30 GET #1,A$,B$
40 GET #1,A$,B$
50 C=0
60 IF A$<>"" THEN C(E)=ASC (A$)
70 IF B$<>"" THEN C(E)=C(E)+ ASC (B$)*256
90 GET #1,B$: IF ST<>0 THEN 200
100 IF B$<> CHR$(34) THEN 90
110 GET #1,B$: IF B$<> CHR$(34) THEN D$=D$+B$: GOTO 110
115 D$(E)=D$:E=E+1
120 GET #1,B$: IF B$=CHR$(32) THEN 120
130 C$(E-1)=""
140 C$(E-1)=C$(E-1)+B$: GET #1,B$: IF B$<>"" THEN 140
160 GET T$: IF T$<>"" THEN GOSUB 2000
170 IF ST=0 THEN D$="": GOTO 30
200 CLOSE 1: PRINT " NO. PROGS.ON DISK";E-1
700 IF V>E THEN V=1:H=1
780 FOR J=V TO E
800 PRINT TAB(1)"[RVS]" MID$( STR$(C(J)),2); TAB(4);"[OFF]";
810 PRINT D$(J);
820 PRINT TAB(19);"[RVS]" LEFT$(C$(J),3)
830 IF J=8*H THEN 6000
840 NEXT
1000 PRINT " BLOCKS FREE":K=1
1010 GOTO 6000
2000 IF T$="Q" THEN CLOSE 1: END
2010 GET T$: IF T$="" THEN 2000
2020 RETURN
4000 REM DISK COMMAND
4020 PRINT "[HOME,DOWN3,BLK]LOAD" CHR$(34)D$(F)
    CHR$(34)",8"
4025 PRINT "[DOWN5]"G$"[HOME]"
4030 POKE 198,2: POKE 631,13: POKE 632,13
5030 END
6000 F=8*(H-1):H=H+1
6004 S=7768
6006 C=S+30720
6007 IF (S>8120) OR (S<7768) THEN 6010
6008 POKE S,102: POKE C,2
6010 P=PEEK (197)
6020 IF P=51 THEN POKE S,32:S=S-44:F=F-1: GOTO 6006
6030 IF P=18 THEN POKE S,32:S=S+44:F=F+1: GOTO 6006
6034 IF P=28 THEN PRINT "[CLR]": GOSUB 10000:V=V+8:
    GOTO 200
6040 IF P=9 THEN 8000
6046 IF P=10 THEN PRINT "[CLR]":G$="RUN": GOTO 4000
6048 IF P=21 THEN PRINT "[CLR]":G$="LIST": GOTO 4000
6050 GOTO 6006
8000 REM WIPE
8005 POKE 198,0
8008 PRINT "WIPE "D$(F)
```

Continued on page 42

TWO TO ONE

by Roger Webber

To get more than one computer to access one disk drive is very simple, in theory anyhow, all it takes is to make the drive believe there is only one computer.

All that is required is:-

1 quad double pole/double throw switch
1 momentary on switch
3 270deg 6 pin din sockets
1 box to fit it all in
1 extra drive to computer din cable

Fit sockets into the sides of box and wire them carefully, as in the diagram, to the quad switch.

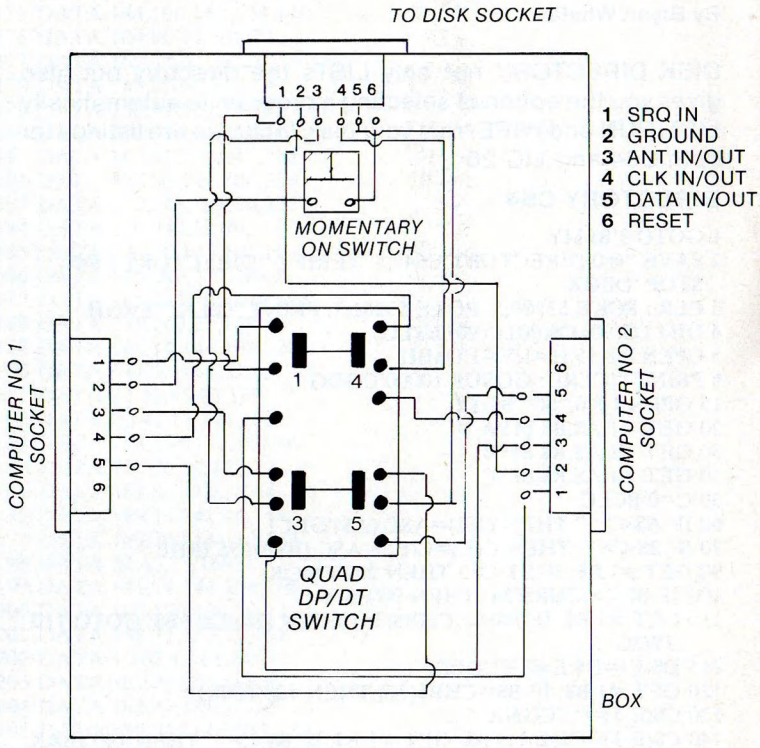
There are two wires that don't go to the quad switch (ground and reset). The ground you simply join up all three sockets as this is common to all of the machinery. The reason the reset wires are not joint is that if one computer is halfway into a program and you start up the other computer you will have both computers doing a reset cold start.

I have the momentary switch on the reset wire of the drive so the drive believes it has just started up when you press it. The operation of this box is therefore to select whichever computer you wish to use the drive, with the position of the quad switch then press the momentary switch to gain access to the drive.

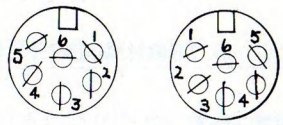
It is not always required to press the latter switch but it does save hang ups and the school I made this for found it cheap and reliable.

You don't have to be smart to realize that by adding a few more quad switches and din sockets you can have more than two computers on this system.

Just before I finish, for them that don't know and would like to save money on disks, take a nick out of your disk opposite the write protect notch and you will now have double sided disks ie. one disk can be written on both sides. I have had no more problems writing on both sides of a disk than writing on the one side. That's all for now.

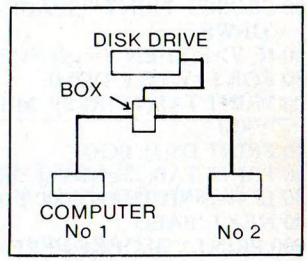


NOTE: Computer IN PINS are opposite to Disk OUT PINS on sockets.



DISK SOCKET PIN OUTS

COMPUTER SOCKET PIN OUTS



ADVENTURE HELP

Michael Spiteri

Stuck in an adventure? Know any good hints for an adventure game? What are your favourite/worse adventure games? Send me a line on:

ADVENTURE HELP c/o publisher.

Ben Wright of Clayfield (Brisbane) is stuck in Interceptor Software's **JEWELS OF BABYLON**. A couple of cannibals are giving him trouble, can anyone help him out? If you can help, send your tips to me and I will pass them on to Ben.

Here are some tips that might get you out of a sticky situation:

HEROES OF KARN C64
An ugly frog? A handsome prince? Kissy Kissy!!

DEADLINE C64
Loblo tablets and a Lab report mixed with a few accusations can very well upset Miss Dunbar (Lab report??? see last issue or contact me!)

MASK OF THE SUN C64
A head and a body make a perfect jigsaw, but first examine the body!

THE HOBBIT C64
A clue for newees – wait till dawn to visit the trolls!

HULK C64
REMEMBER NIGHTMARE! Then pull the ring, but leave the Bio Gem till last!

SHERLOCK C64
How about someone helping me for a change?

GARDEN OF EDEN C64
In a grassy place lives a grasshopper.

ADVENTURELAND C64 VIC20 VIC16 PLUS4
A thin bear doesn't like people yelling at him!

VOODOO CASTLE C64 VIC20 VIC16 PLUS4
A huge kettle! Heave, heave, heave!

BASTOW MANOR C64
Move a case in the shed for a new exit, you'll need a torch(mailbox).

TAREK C64
When moving up from level three very strict records must be kept or else you'll fry – You might in any case!

I must leave you now, but if ever in doubt, help is at hand!

THE VIC MAGICIANS APPRENTICE

Michael Spiteri

VIC'S AND THEIR PRINTERS!

This issue's article is dedicated to those fortunate Vic people who own 801/802/1526 etc. printers. I will be teaching you how to create a simple word processor that can be used for many applications. Word processors are very expensive, and if all you want is to print out messages, lists, etc. There is one very short program that will do the lot.

Here it is:

```
10 OPEN 2,4
20 INPUT A$
30 PRINT#2, A$
40 GOTO 20
```

Line 10 opens the printer file.
Line 20 asks the user to input what he wants to print.
Line 30 prints the input.
Line 40 returns back to the input the statement.

When you run this program, a question mark will appear on the screen. Now enter anything you want and press return. If your printer is set up, what you entered will be printed. Then the question mark will reappear and wait for your input.

Let's now make the program finish when the user enters 'STOP'.

Enter this line:

```
25 IF A$ = "STOP" THEN CLOSE2:END
```

So, if your enter STOP when the question mark appears, the program will close the printer file and end.

Now we'll put a left margin into the program. Enter and replace the following lines.

```
15 INPUT "MARGIN";T
30 PRINT#2, ""SPC(T);A$
```

When you run the program now, you will be asked to enter the margin required. If you enter anything besides a number, REDO FROM START will be printed on the screen and you will be asked to re-enter the MARGIN (because the program expected a number). Enter any number, say 10, and anything you enter will be tabbed at this setting.

Our next line will count each line of information as it is entered.

```
19 L = L + 1 : PRINT "LINE";L
```

The line number should now appear on the screen before the question mark.

The following lines will add a letter size option to the program.

```
11 PRINT "ENTER LETTER SIZE (B/S)"
12 GET Z$:IFZ$<>"B"ANDZ$<>"S" THEN 12
13 IF Z$ = "B" THEN PRINT#2, CHR$(14)
14 IF Z$ = "S" THEN PRINT#2, CHR$(15)
```

Line 11 prints a message
Line 12 waits for the correct letter to be pressed.
Line 13 will make the letters large (CHR$(14)) if 'B' is pressed.
Line 14 will make the letters small (CHR$(15)) if 'S' is pressed.

When the program is run, the user will be asked whether the writing that is printed out on the printer is big or small. This might be a good idea, but suppose the person wants to change the size of the writing while he is entering information to be printed. This can be done easily by adding two lines:

```
26 IF Z$ = "*BIG" THEN PRINT#2, CHR$(14):GOTO20
27 IF Z$ = "*SMALL" THEN PRINT#2, CHR$(15):GOTO20
```

If the user enters *BIG during data entry, then the size of letters will switch to large. If he/she enters *SMALL then size of writing changes to small.

Our program should now look like this:

```
10 OPEN 2,4
11 PRINT "ENTER LETTER SIZE(B/S)
12 GET Z$: IFZ$<>"B"ANDZ$<>"S" THEN 12
13 IF Z$ = "B" THEN PRINT#2,CHR$(14)
14 IF Z$ = "S" THEN PRINT#2,CHR$(15)
15 INPUT "MARGIN";T

19 L = L + 1 : PRINT"LINE";L
20 INPUT A$
25 IF A$ = "STOP" THEN CLOSE2:END
26 IF A$ = "*BIG" THENPRINT#2,CHR$(14):GOTO20
27 IF A$ = "*SMALL" THENPRINT#2, CHR$(15):GOTO 20
30 PRINT#2,""SPC(T);A$
40 GOTO 20
```

MAKING IT EVEN BETTER

Here are a few ways of improving the program even more:

a) Enhance the screen presentation Change the screen/border and character colours, neatly layout the screen etc.

b) Add sound effects! A simple beep after the user presses return, scales indicating start and finish of the program. Little things like that will improve the program and your programming!

c) Convert the program to other micro's. As it stands, the program will run on any Commodore computer. Maybe a friend who owns an Atari, BBC etc will appreciate such a program for his micro (and to rub it in, add this line – 1 REM #DESIGNED ON A COMMODORE COMPUTER#!)

d) Add more editing features (there must be many more!)

ERRATUM

MAPGEN – Vol 5 No.1

Gremlins strike again! Sorry folks – egg on my face etc. . Here are the missing lines:

```
3320 DATA 4,2,4,,5,168,3,160,56,,2,3,5407
3330 DATA 1,1,1,,1,12,1,7,2,13,1,48,5088
3340 DATA 1,,1,128,1,224,1,176,1,44,1,204,5782
3350 DATA 1,193,5,,1,8,1,236,1,156,1,128,5731
3360 DATA 1,32,1,160,1,112,108,,1,255,1,213,5885
3370 DATA 1,62,1,2,1,3,3,14,3,245,2,253,5590
3380 DATA 1,254,1,190,1,170,1,112,1,88,1,79,5899
3390 DATA 1,138,3,90,1,85,3,,1,240,1,176,5739
3400 DATA 1,172,2,92,16,,1,6,1,7,1,1,5300
3410 DATA 5,,1,147,2,151,1,215,1,127,3,,5653
3420 DATA 4,253,1,61,1,3,1,1,1,3,2,127,5458
3430 DATA 1,126,2,106,3,170,1,255,1,175,1,171,6012
```

Mervyn Beamish

A DOS TRICK

by Paul Blair

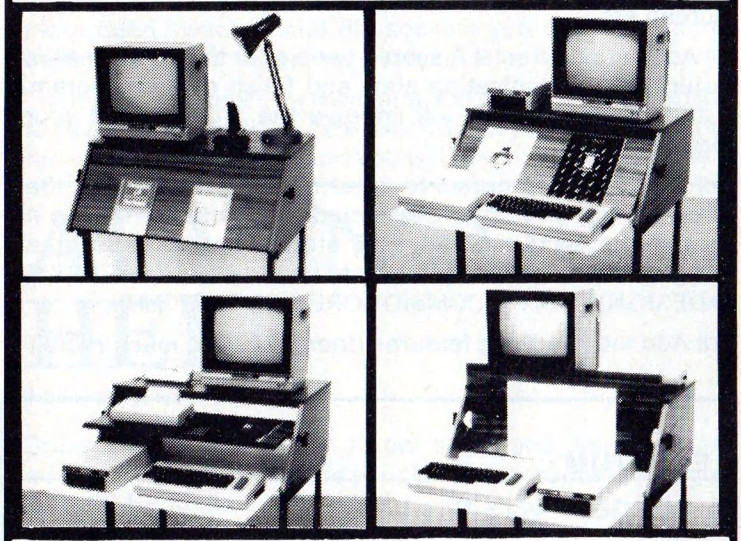
Most C64 users have learned the value of using the DOS WEDGE (or DOS SUPPORT or DOS 5.2 or ...) program to facilitate disk operations with the 1541 disk drive. If you don't know about DOS, there is a set of my Disk Notes floating around most User Groups (they got them for free, but there may be a small charge to cover printing and the Executive's monthly night on the town). Get a set, then come back and read this.

There is one feature in DOS that I have never seen explained, the VOL syntax. If you know all about it, then go on with your knitting. If not, then let me explain.

DOS WEDGE makes loading and saving of files very easy. There are different types of LOAD (relocating, non-relocating and load/run) and a simple SAVE syntax, using the back-arrow key. No problems there.

But when you are writing programs, it is nice to save off your work to disk every so often (nag, nag), just in case you accidentally kick the power plug off, or live in Queensland. The sort of thing I do is NOT to overwrite older copies, but to save a fresh copy with some variant in the name to help identify the latest version. No doubt you have done something similar, so you will understand what I'm talking about.

Where is your Commodore?



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There are as many variants available as your imagination permits. Some programmers use a time/date combination, like "MYPROG 1130MAR16", or a sequence like "MYPROG V0.9". But DOS gives you another way that is very easy to use. It's called VOL in the DOS WEDGE source code, and it works like this.

Your super gizmo program is part done, you are toddling off to bed, and want to save the part that's finished. With DOS, you can type +MYPROG[1], where I have used "+" to represent the back-arrow symbol used by DOS to identify a program SAVE. Note the square brackets, and the single character ("1") volume inclusion.

If you paused a moment longer before slipping off to view the directory, you would see your program name stored on the disk as "MYPROG 1". Cunning, huh?

To load it back, you could type /MYPROG[1], and press RETURN. You don't have to type all the spaces shown between "G" and "1" shown above. Not only that, but you could even use /MY*[1], if MY* would be enough to accurately identify the proper program. This has an interesting result. The screen message will read "SEARCHING FOR MY????????????1", which means DOS has inserted a series of pattern-match characters in the syntax. Don't take my word for it, try it for yourself.

What about the next nights work? Maybe the next stage of MYPROG could be saved as +MYPROG[2], and so on until you are happy with it.

Of course, program development time is not the only time to use such a facility. It has many and varied uses, and as everyone has some sort of system to their disk files (don't you?) then it's a matter of adapting the idea to suit the individual parameters.

While on the subject of DOS WEDGE, there are other useful versions about, some with more or less commands. One particular version is DOS 5.2, and I have been asked about the differences between it and DOS 5.1. There are a couple, the main one being a child of my weariness with typing three or four letters from all over the keyboard to get a directory list. Press "=" then RETURN (they are next to each other, so you can even do it one fingered!!). The other principal difference is screen blanking during LOAD and SAVE, just to save a few seconds with the 1541 drive.

SPECIAL NOTE

The MPS801 printer chip with descender characters has been a great success. A recent letter in RUN from Maureen Williams (WA) prompted a flood of mail to Paul. To celebrate, the chip in the 1525 printer has been treated similarly. There were two distinct ROMs issued for the 1525, so you will need to know which model you have. If you have a 1525 and would like to update, contact Paul at 35 Calder Crescent, Holder, ACT 2611.

PROGRAM LISTS

Paul Blair

If you have plucked up the courage to put pen to paper and write an article about your 1 a.m. miracle disk zapper program, you will no doubt lash up your favourite word processor and set to work. With a dictionary, a fresh pack of....well, never mind, and some strong coffee, you will do what we all do and hunt and peck your way around the keyboard, and eventually the article to shake the world will take shape.

But here's the rub. The program you have laboured over so tenderly is 100 lines long. Now we all know that the reason most programs don't transcribe from magazines is because someone has retyped the whole shebang on a typesetter or whatever, and made a few blues. Anyway, who wants to retype 100 lines?

If your word processor stores its files as sequential files, the trick is very easy indeed, and my mate Keith Lovell has saved me countless hours with it. Try this.

(1) Reset your computer
(2) Load your Basic program
(3) In direct mode (straight from the keyboard without line numbers) type:

```
OPEN2,8,2,"0:FILENAME,S,W":CMD2:LIST
```

then press RETURN
(4) When the disk active light (the red one) goes out, type

```
PRINT#2:CLOSE 2
```

and again press RETURN

You have now saved your program as a sequential file, and it may be loaded into your sequential file-writing word processor for inclusion in your article.

Some editing will probably be required. Cursor control characters and colour characters will not translate accurately, and you will need to scan the new file and replace these fellers with something more readable, e.g, [CUR RT] or [WHT]. But that's a small price to pay for the speed, but even more importantly, accuracy, of your masterpiece.

ED – Please do not submit contributions in this format

RTERM

Refer RCOM BBS page 8.

```
1 REM ################################## 'BJCE
2 REM ######### R T E R M ##############'BDLF
3 REM #########SIMON FINCH##############'BILH
4 REM ######### 02/02/1985##############'BIWH
5 REM ################################## 'BJCI
6 :'ABHE
7 :'ABHF
8 :'ABHG
9 :'ABHH
10 POKE 53280,6: POKE 53281,6: PRINT "[CLR129,WHT]";'DRPC
11 PRINT "[SPACE15]R T E R M 2"'BASC
12 PRINT "[SPACE15,<Y><Y><Y><Y><Y><Y><Y><Y><Y><Y><Y>]"'BAVJ
13 PRINT "[SPACE6]COPYRIGHT RCOM COMPUTING 1985"'BAXJ
14 PRINT "[DOWN,RVS,SPACE13]TERMINAL READY[SPACE12, OFF,DOWN]"'BAAJ
15 OPEN 2,2,2, CHR$(6)+ CHR$(0)'EMXG
16 GET #2,I$: IF I$="" THEN 22'EKAH
17 IF I$="[F7]" THEN D=1: GOSUB 29'FHAJ
18 IF I$="[F3]" THEN GOSUB 34'EEDI
19 IF I$="[F5]" THEN GOSUB 36'EEGJ
20 IF I$="[F8]" THEN D=6: GOSUB 29'FHJD
21 PRINT I$;'BDOA
22 GET O$: IF O$="" THEN 16'EHME
24 IF O$="[F1]" THEN PRINT#2,"P";: GOTO 16'FILH
25 IF O$="[F3]" THEN PRINT#2,"S";: GOTO 16'FIPI
26 IF O$="[F7]" THEN PRINT "[RVS]*[OFF]";:D=1: GOSUB 29'GJXL
27 IF O$="[F8]" THEN PRINT "[RVS]*[OFF]";:D=6: GOSUB 29'GJGM
28 PRINT#2,O$;: PRINT O$;: GOTO 16'DMDK
29 FOR X=1 TO D'DDNJ
30 POKE 54296,15'BIAB
31 POKE 54273,25'BIVC
32 POKE 54277,12: POKE 54276,33'CRDF
33 FOR R=1 TO 750: NEXT : POKE 54276,32: NEXT : RETURN 'HRJJ
34 GET #2,A$: IF A$="" THEN 34'EKMH
35 POKE 53280, ASC (A$): RETURN 'DLJI
36 GET #2,A$: IF A$="" THEN 36'EKOJ
37 POKE 53281, ASC (A$): RETURN 'DLKK
```

SEQUENTIAL TO PROGRAM CONVERT

Mervyn Beamish

If you have a BASIC program as a sequential file (refer above) and you wish to convert it back this listing should help.

The system will hangup if any program line is more than eighty characters long so be careful of command abbreviations.

To gain an understanding of how it works read Greg Perry's article 'SELF MODIFYING PROGRAMS' Vol 4 No. 5.

Enter, SAVE and RUN. When the program has completed LIST. This program can be put to good use when transferring programs via the telephone.

```
63740 PRINT "[CLR,SPACE2]SEQUENTUAL TO PROGRAM CONVERSION"'BACO
63939 INPUT "FILE NAME:";N$'BDNR
63940 PRINT : IF LEN (N$)=0 THEN END 'GGLK
63941 OPEN 10,8,10: PRINT "[CLR]"'CIMK
63942 OPEN 8,8,8,N$'BIKK
63943 INPUT#10,A$,B$,C$,D$'BOVM
63944 IF VAL (A$)=0 THEN 63946'EKEO
63945 PRINT B$: CLOSE 10: CLOSE 8: END 'EIGP
63946 POKE 152,3:T$="": POKE 144,0'DOIQ
63947 IF PEEK (144)<>0 THEN 63949'FLDS
63948 A$="": GET #8,A$: IF A$="" THEN 63947'FQJU
63949 IF A$=CHR$(13) THEN 63953'ELGT
63950 IF ASC (A$)<97 OR ASC (A$)>122 THEN 63952'HSAP
63951 A$=CHR$( ASC (A$)-32)'EKLM
63952 T$=T$+A$: GOTO 63947'DMDN
63953 IF LEN (T$)<3 THEN T$="": GOTO 63947'GNHQ
63954 IF VAL ( LEFT$(T$,1))=0 THEN T$=RIGHT$(T$, LEN (T$)-1): GOTO 63953'KCCX
63955 PRINT CHR$(147)"[SPACE]#" VAL (T$)'DJFQ
63956 PRINT CHR$(17); CHR$(17);T$: PRINT "GOTO63946"'ENRU
63957 POKE 198,2: POKE 631,13: POKE 632,13: PRINT CHR$(19): END 'GAGW
63958 :'ABHP
63959 PRINT "[CLR]": PRINT "COMPLETED": CLOSE 8'DDIV
63960 PRINT "[HOME]": END 'CBBJ
```

DATA COMPACTION

by Paul Blair

If you like playing around with data, or simply like trying to use the power of your computer more efficiently, then you will enjoy this little program.

I will make one of my Sweeping Generalities, and assume that you know that any character is stored inside your Commodore in one byte (one memory location), and each byte is made up of eight bits. You knew that, of course.

Provided you stick with the letters of the alphabet, or numbers, or some punctuation marks, you really need only five or six of those eight bits to store each character, because the ASCII values are can be made less than 64. Any number up to 32 needs only five bits (32 is 2 to the power of 5), and any number between 32 and 63 needs another bit. This means that the physical memory space required to store a string can be reduced by up to 33%. If you are short of space, either in memory or on disk or cassette, this routine will be useful to you.

The program has HELPOUT checksums to assist you with accurate program entry. The program starts with some useful reminders for later....

```
100 REM: COMPACT/SCOMPACT'BRNA
110 REM: DATA CRUNCH ROUTINE'BSDB
120 REM: FOR ANY COMMODORE COMPUTER'BYVE
130 :'ABHX
140 REM: ORIGINAL AUTHOR UNKNOWN'BWHG
150 REM: REVISED AND MADE OPERABLE'BXPH
160 REM: PAUL BLAIR MARCH 1985'BTQG
170 :'ABHC
180 REM: NAME: COMPAT/SCOMPAT'BUUJ
190 REM: USE:-'BGDG
200 REM: IF YOU ARE WORKING WITH'BUMC
210 REM: ALPHA/NUMERIC DATA YOU CAN'BYOE
220 REM: SAVE STORAGE SPACE BY USING'BYDF
230 REM: THE COMPACT ROUTINE.'BTFF
240 :'ABHA
250 REM: YOU CAN RETURN THE DATA TO'BWWI
260 REM: "NORMAL" USING THE SCOMPACT'BRNJ
270 REM: ROUTINE.'BJDG
280 :'ABHE
290 REM: ENTER THE COMPACT ROUTINE AT'BAIM
300 REM: LINE 540 WITH THE STRING'BVAD
310 REM: TO COMPACT IN ZA$.'BQVC
320 REM: THE S/ROUTINE EXITS WITH'BWBG
330 REM: THE COMPACTED STRING IN ZZ$.'BAXH
340 :'ABHB
350 REM: ENTER THE SCOMPACT ROUTINE AT'BBKK
360 REM: LINE 820 WITH THE STRING'BVBJ
370 REM: TO UNCOMPACT IN ZZ$.'BSDJ
380 REM: THE S/ROUTINE EXITS WITH'BWBM
390 REM: THE UNCOMPACTED STRING IN ZA$.'BCFO
400 :'ABHX
```

The next few lines are for demonstration of the routines. Try setting up some strings of your own to test the program.

```
410 REM: SAMPLE ROUTINE'BOBD
420 :'ABHA
430 PRINT"[CLR][DOWN]DEMONSTRATION OF STRING
    COMPACTION"'BACL
440 ZA$="12345.0/-.GHIJKLM":ZA$=ZA$+ZA$'DNPL
450 PRINT:PRINT:PRINT"STRING TO COMPACT":PRINT"[RVS]"
    ZA$:PRINT'FHIM
460 PRINT"ORIGINAL LENGTH"LEN(ZA$):GOSUB540'DJRM
470 PRINT:PRINT"COMPACTED LENGTH"LEN(ZZ$)'DGQM
480 GOSUB820:PRINT:PRINT"UNCOMPACTED STRING":
    PRINT"[RVS]"ZA$'EJVP
490 PRINT:PRINT"UNCOMPACTED LENGTH"LEN(ZA$)'DGAP
500 END'BACY
```

Here is the compacting routine. The best way to see programs like this is to view them in action. If you have a programmers aid (POWER, VICTREE etc), set up for "TRACE" and watch program execution on the screen.

```
520 REM: COMPACT'BIHD
540 ZX=INT((LEN(ZA$)+2)/3)*3-LEN(ZA$)'IT
550 IFZX=0THEN580'DGXH
560 IFZX=1THENZA$=ZA$+CHR$(0):GOTO580'HQWN
570 ZA$=ZA$+CHR$(0)+CHR$(0)'FMUM
580 ZX=LEN(ZA$)'CHEK
590 ZZ$=""'BDMJ
600 FORZY=1TOZXSTEP3'EGWE
610 ZX$=MID$(ZA$,ZY,3)'CNJF
620 FORZJ=1TO3'DEWE
630 ZK=ASC(MID$(ZX$,ZJ,1))'DOOI
640 IFZK<45THENZK=0:GOTO690'FLTJ
650 IFZK<58THENZK=ZK-44:GOTO690'GODM
660 IFZK<65THENZK=0:GOTO690'FLVL
670 IFZK<91THENZK=ZK-51:GOTO690'GOXO
680 ZK=0'BDJJ
690 ONZJGOTO700,710,720'CNVM
700 ZS=ZK:GOTO730'CIVE
710 ZS=ZS+ZK*40:GOTO730'EMYH
720 ZS=ZS+ZK*1600'DKFH
730 NEXT'BAEE
740 ZK=INT(ZS/256)'DJIJ
750 ZJ=ZS-ZK*256'DJFK
760 ZZ$=ZZ$+CHR$(ZK)+CHR$(ZJ)'FOVO
770 NEXT'BAEI
780 RETURN'BAQJ
790 :'ABHK
```

Now, the unpacking process.

```
800 REM: SCOMPACT'BJJF
810 :'ABHD
820 ZA$=""'BDMF
830 FORZY=1TOLEN(ZZ$)STEP2'FJEK
840 ZK=ASC(MID$(ZZ$,ZY,1))'DOGL
850 ZJ=ASC(MID$(ZZ$,ZY+1,1))'EPSN
860 ZK=ZK*256+ZJ'DJVM
870 ZJ=INT(ZK/40):ZX=ZK-ZJ*40:GOSUB990'HVDT
880 IFZX=0THEN900'DGTN
890 ZA$=ZA$+CHR$(ZX)'DKNP
900 ZK=INT(ZJ/40):ZX=ZJ-ZK*40:GOSUB990'HVDN
910 IFZX=0THEN930'DGWH
920 ZA$=ZA$+CHR$(ZX)'DKNJ
930 ZX=ZK:GOSUB990'CINJ
940 IFZX=0THEN960'DGAK
950 ZA$=ZA$+CHR$(ZX)'DKNM
960 NEXT'BAEJ
970 RETURN'BAQK
980 :'ABHL
990 IFZX=0THENRETURN'EDIP
1000 IFZX<14THENZX=ZX+44:RETURN'GLKY
1010 ZX=ZX+51:RETURN'DHMW
```

The program is slow. No apologies for that because, while machine code would make the routines fairly zip, you would not learn as much in this type of exercise as you can from a Basic listing. Anyway, if you are into machine language, you might like to write a routine just to prove to us all that you can do it!

THE OTHERS

by David Roth

FORTH

A DO-IT-YOURSELF LANGUAGE

FORTH was invented around 1970 by Charles Moore, an astronomer, for the computer control of machines – specifically for controlling the telescopes at Kitt Peak, Arizona.

The development of FORTH is now being carried out by the FORTH Interest Group (FIG). The main application are for FORTH is process control and for reading and controlling laboratory or factory devices and instruments.

A prerequisite to understanding FORTH is a good knowledge of Assembler concepts. You should have at least have mastered hexadecimal and understand addressing. FORTH is also highly individual.

A programmer can read his own code (not always!) but often finds other programmers' code hard to read. In my own hierarchy of languages, BASIC is for the masses, Assembler is for the meticulous and FORTH is for the adventurous.

In these days of 'egoless programming, FORTH is the last frontier for the individual.

But FORTH has good points in its favour:

– It is fast. It is very nearly as fast as Assembler for many applications.
– FORTH is concise and compact. FORTH applications take up less memory than the equivalent Assembler applications.
– FORTH can reduce program development time (even for equivalent BASIC programs!).

The most significant advantage of FORTH for the new programmer is its ability to hide complexity. The complicated FORTH 'atoms', once mastered, can be readily combined into a simple, meaningful commands. These useful 'molecules' can then be combined, like building blocks, into an 'application' (FORTH jargon for a program).

The chief requirement is that each building block is thoroughly understood, or the whole house may collapse.

Most FORTH manuals start with the 'hard bits' of FORTH – the stack, compilation, the dictionary, etc. But I think the following examples give more of the flavour of FORTH for people defeated by that initial hurdle. They also illustrate an area where FORTH is clearly superior to BASIC, using a minimum of FORTH jargon. Hopefully these examples are interesting enough to encourage mastery of the harder parts. The examples were written and tested using TINY FORTH (from ABACUS software – CW Electronics, Brisbane are Aust distributors we believe).

SCREEN COMMANDS

To change screen colours in FORTH, start with the following 'recipe'. (Note – some versions of FORTH provide built-in commands for the CBM-64, but it is more instructive to 'try-it-yourself')

```
53280 CONSTANT BACKGROUND
53281 CONSTANT FOREGROUND
0     CONSTANT BLACK
```

These commands define three constants which can be used by all subsequent commands.

```
: BLACK-BG BLACK BACKGROUND C! ;
```

This is a 'colon-definition', defining a new FORTH word, BLACK-BG. It uses the FORTH word 'C!' (pronounced C-store). 'C!' stores the value BLACK into the address BACKGROUND. It is easy to define 'BLACK-FG'.

```
: BLACK-FG BLACK FOREGROUND C! ;
```

We can now start combining these two new words into further new words.

```
: BLACK-SCREEN BLACK-BG BLACK-FG ;
```

In this manner, we can define all the rest of the colours, RED-SCREEN, BLUE-SCREEN and so on – or even BLUE-AND-RED-SCREEN. For a really 'flash' effect, try the following :-

```
: FLASH
  BEGIN ( start a loop )
  BLACK-SCREEN
  WHITE-SCREEN
  BLUE-SCREEN
  GREEN-SCREEN
  YELLOW-SCREEN
  PURPLE-SCREEN
  ?TERMINAL ( last key pressed ? )
  UNTIL CR ; ( end loop if run/stop )
```

SPRITES

This example uses a very simple sprite shape. A square block is created, consisting of hexadecimal 'FF' (decimal 255). 63 'FF's are placed in the sprite buffer.

```
832 VARIABLE SPRITE1 ( use the tape buffer at 832 )
: STORE-SPRITE1
  62 0 DO ( do 63 times )
  C! ( put 255 in buffer )
  1 SPRITE1 +! ( add 1 to the buffer address )
  LOOP ; ( end of loop )
```

When STORE-SPRITE1 is executed, 63 'FF's are placed in the tape buffer starting at address 832.

Now we need to activate the sprite by giving commands to the VIDEO chip.

```
53248 CONSTANT VIDEO ( chip address )
: SPRITE-ON 4 53269 C!
: SPRITE-OFF 0 53269 C! ;
: SPRITE-PT 13 2042 C! ; ( set sprite 2 data pointer to
tape buffer )
: X-POS VIDEO 4 + C! ; ( X ptr for sprite 2 )
: Y-POS VIDEO 5 + C! ; ( Y ptr )
```

Using these 'building-blocks' :

```
: SPRITE-EXAMPLE1
  RED-SCREEN ( pick a colour )
  STORE-SPRITE1 ( store the shape )
  SPRITE-ON ( enable sprite )
  SPRITE-PT ( set sprite pointer )
  160 X-POS ( x pos = 160 )
  100 Y-POS ; ( y pos = 100 )
```

When SPRITE-EXAMPLE1 is executed, there should be a square sprite roughly in the centre of the screen. Executing SPRITE-OFF turns it off.

continued on page 42

Viatel and the Commodore 64

By Greg Perry

Telecom's Viatel service has now been in official operation since late February and over this time has been generating considerable interest among Commodore users. This article is in response to the large number of enquiries we have had on using the service with the Commodore 64. Hopefully it will eliminate some of the confusion that seems to be around.

What is Viatel

Viatel is a videotex service provided Australia wide by Telecom. Each videotex 'frame' or screen consists of up to 24 rows of 40 columns and may include up to seven colours. The displayed characters may be normal text (alpha-numerics with a few extensions) or a series of mosaics or block graphics built up on a 3*2 grid. With its high resolution capacity and range of screen colours, the C64 provides the ideal, most cost effective method of accessing Viatel. Try doing this on an Apple or cheap IBM!

The system is available 24hrs a day from any normal telephone service in Australia by dialing 01955. Connection charges are very reasonable, even cheap, at 8c/minute during business hours and 5c/minute after 6pm.

Unlike most BBSs, in order to access the full Viatel service, one must become a registered Viatel subscriber. Membership costs $2.50/month and may be obtained by phoning or filling in the appropriate form your local Telecom business office. In these days of computerisation the process only takes two weeks to a month!

I do not intend to discuss what Viatel offers, nor how to use it, that will be covered in a later edition. Instead, I will attempt to briefly cover the mechanics of actually getting on line with a Commodore 64.

Connecting to Viatel

To connect to Viatel, the minimum requirements are a C64, a suitable modem and software, and of course a telephone line.

The Modem.

To access Viatel, after becoming a subscriber, one must use a modem which supports the 1200/75 baud rate (known as the V23 standard). 1200/75 baud means that data is transferred from the data base at roughly 120 characters a second (a full screen takes only a few seconds), and from your modem to the data base at roughly 7.5 characters per second. Since most of the information is coming from the data base in the form of complete screens and the user responds with only limited control keys, the system works well. Software download is particularly fast if you are used to the 300 baud from BBSs.

There are now several suitable modems on the market. These include versions from Sendata, Acme Software/Hi Technology, Micromodem, and others. Modem kits such as those Avtek are also proving popular. Prices are in the vicinity of $250.00 to $300.00. A selection should be available from your local dealer.

Apart from the Dotsoft version of the Sendata modem (see below), most modems offer similar facilities and the choice should probably be made on price and advice from other users. When buying a modem, however, ensure that it supports both 1200/75 as well as the more usual 300/300 baud rates so that you may access local BBSs.

Any comment on modems must also mention a potential problem. Most of the new generation of multi-baud rate modems are based on a singe integrated circuit. This is called the World Modem chip. Also, most of the these modems do not have their own power supply but simply draw their power directly from the user port of the C64. Commodore's technical specifications recommend the maximum power drain from the user port be limited to 100 mA. However, the World Modem chip alone draws a minimum of about 150 mA, even before the other circuitry and LEDs are added. In non-technical terms, this means that such modems may overload the C64s power supply and dramatically shorten its life. Well, that's the theory.

Many people are already using such modems and it would be sensible precaution to ensure that the C64's power supply is in a well ventilated area and does not get too hot.

Software.

Since the Commodore RS 232 was not designed to handle the split or different incoming and outgoing baud rate of 1200/75, many people thought that the C64 would not be able to access Viatel. However, like most other rumours, this has been proven to be not true. It is actually quite easy to make the C64 perform this trick in a number of ways. (At least two different methods are available to my knowledge.)

At the time of writing this article (mid June), there were at least four software packages on the market which will support 1200/75 and Viatel. These are:

Dotsoft's 'The Communicator' package.
The Handic Videotex Cartridge.
Acme software's Cartridge 64 TALK.
Via-64-Tel from Microtex 666.

(Commodore themselves do have a cartridge in preparation but just when we will see it is a matter of opinion!)

Since I am on intimate terms with the author of Via-64-Tel, I cannot really discuss the advantages or disadvantages of each package. However, the minimum features one should look for in any package should at least include the following:-

- Full compatibility with Viatel including all colours, special characters, graphics, and special features such as double height and flashing functions. (Sometimes the package may include the extra ability to 'edit' frames, but this is of limited use to the average user.)
- Full Viatel software download compatibility for programs and files (## ABSOLUTELY VITAL ##) combined with the ability to download programs of at least 24k in length.
- Versions to download to either tape or disk.
- Saving frames to memory and disk.
- Recall of frames from disk when off line.
- A Hardcopy facility.
- Compatibility with normal Modem Connections

Notes

Hardcopy. Beware of some of the high resolution hardcopy facilities. These may either not work on your printer or may take forever. A better facility is one which

simply ignores any graphics and rapidly prints the text. Who wants graphics on a bank statements, share prices, or airline schedules?

Software Download. Viatel has the facility to download software to the user but it requires a special protocol to work correctly. Some software packages may be (are!) adaptions of programs specifically designed to support the English Prestel videotex standard. Most likely, these will not be compatible with Viatel. BEWARE: Make sure the package you buy is fully compatible with the MICROTEX 666 implementation of the CET download protocol (which conforms to all Telecom's standards). Some packages, including the first two mentioned above definitely WILL NOT download software from Microtex 666. (I have been told that Dotsoft are working on their package.)

For your own protection ensure that the dealer guarantees a full refund if the software does not work as advertised or at least try it out before leaving the shop.

Modem Compatibility. Some packages, namely The Communicator from Dotsoft, require a special modem connection not compatible with normal industry standards. (Why this has been done is quite beyond me. If there is a standard why not stick to it!) Such software will lock you into one specific modem from one specific manufacturer. Not a good idea. Ensure that the software will work with a range of modems.

Microtex 666

The Viatel system has a number of 'closed user groups' provided by organizations outside Telecom. ('Service Providers' or SPs in Viatel terms.) A CUGs allow s a Service Provider to supply special services such as downloadable software, private bulletin boards, access to their own computer systems, and much more specialized information. Often the SP will charge an extra fee per frame for the service. In order to gain access to these facilities, the user must specifically join the CUG after joining Viatel.

The main CUG of interest to Commodore users is Microtex 666. Membership is $49.95 per year.

Microtex 666 presents a magazine type format and plans to provide tips and hints, bulletin boards, software and hardware reviews, computing articles, special offers of software and hardware, and much more. Microtex 666 also provides a large range of software to download. Some programs are free but more usually each program has a small charge from $0.50c and upwards for the longer and more elaborate games. (In effect one 'buys' a copy of the software.)

Being part of the umbrella of organizations which publish Australian Personal Computer and PC Games, Microtex 666 has quite a range of C64 programs, including the latest programs from these magazines. There are extensive plans already underway to expand the service quite dramatically to provide a complete videotex magazine for micro users with a heavy emphasis on Commodore. Microtex 666 has already been instrumental in helping to set the standards for reliable software download for the Commodore 64.

Microtex 666 is also encouraging contributions from budding software authors. They are offering a royalty of 20% of the download fee. Quite a good offer. Anyone with original software should contact them directly at 77 Glenhuntly Rd, Elwood, Melbourne or on Viatel page 666.

If any of our readers are on Viatel, my mailbox number is 738329500. I do not promise to reply to all letters but would be interested to hear any comments from other users.

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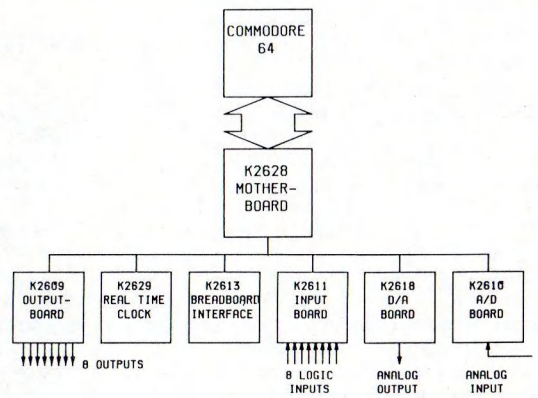

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SWEET SIXTEEN

Michael Spiteri

Here is a simple text adventure for your C16/Plus4, originally written on a VIC-20 (see VIC Family Book).

In this adventure you have to collect as much gold as possible before you die from lack of strength. Commands understood are:

KILL, SPELL, LOOK, GET, INVENTORY, DROP and SCORE.

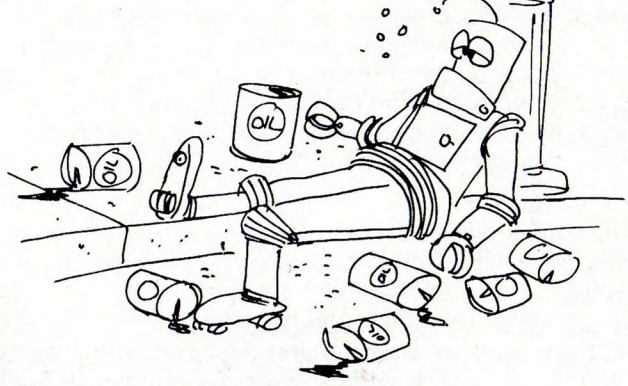
Good Luck!

TROLLS GOLD

```
5 REM ***TROLL GOLD***
10 TI$="000000"
15 COLOR 0,1
20 PRINT "[CLR,WHT,SPACE5]TROLLS GOLD"
21 PRINT "[DOWN,SPACE3]SUPERIOR SOFTWARE"
25 PRINT "[DOWN]YOU ARE SOMEWHERE IN[SPACE2]
   THE TROLLS CASTLE!": PRINT "[DOWN2]HIT A KEY TO START"
30 GET Z$: IF Z$="" THEN 30
35 PRINT "[CLR,WHT]I AM IN A ";:A=INT ( RND (1)*4): IF A=0
   THEN PRINT "TOWER."
40 IF A=1 THEN PRINT "TUNNEL."
45 IF A=2 THEN PRINT "DUNGEON."
50 IF A=3 THEN PRINT "ROOM."
55 PRINT "[DOWN]I SEE A ";
60 B=INT ( RND (1)*7): IF B=0 THEN PRINT "TROLL WITH HIS":
   PRINT "[RVS,YEL]GOLD[OFF,WHT]."
65 IF B=1 THEN PRINT "SWORD."
70 IF B=2 THEN PRINT "WAND."
75 IF B=3 THEN PRINT "CRYSTAL BALL."
80 IF B>3 THEN PRINT "[LEFT2]NOTHING."
85 IF TI$>"001000" THEN PRINT "[DOWN,RVS]NO ENERGY
   LEFT!": GOTO 400
90 PRINT "[DOWN2,CYN]WHAT SHALL I DO NOW?[WHT]"
95 INPUT A$:B$="":C$="":H=1
100 FOR L=1 TO LEN (A$)
105 IF MID$(A$,L,1)=" " THEN H=2: GOTO 120
110 IF H=1 THEN B$=B$+ MID$(A$,L,1)
115 IF H=2 THEN C$=C$+ MID$(A$,L,1)
120 NEXT L
125 IF B$="KILL" THEN 170
130 IF B$="LOOK" THEN 210
135 IF B$="SPELL" THEN 255
140 IF B$="GET" THEN 295
145 IF B$="I" OR B$="INVENTORY" THEN 340
150 IF B$="GO" THEN 365
155 IF B$="SCORE" THEN 390
160 IF B$="DROP" THEN 405
165 PRINT "[DOWN,YEL]SORRY, I CANT DO THAT!": GOTO 85
170 IF C$="TROLL" AND B<>0 THEN PRINT "[DOWN]
    HE IS NOT HERE!":GOTO 85
175 IF C$="TROLL" AND S=0 THEN PRINT "[DOWN]YOU HAVE
    NO SWORD!": GOTO 85
180 IF C$="TROLL" AND S=1 THEN F=INT ( RND (1)*2):GOTO190
185 GOTO 165
190 IF F=0 THEN 395
195 IF F=1 THEN PRINT "[DOWN]YOU SCARED HIM AWAY!":
    PRINT "[DOWN]THE GOLD IS YOURS!": GOTO 205
200 IF F=2 THEN F=1 GOTO 195
205 IF F=1 THEN G=G+1: PRINT "[DOWN]BUT YOUR SWORD
    BROKE!":S=0: GOTO 85
210 IF C$="" THEN PRINT "[DOWN]NOTHING SPECIAL.":
    GOTO 85
215 IF B=1 OR S=1 AND C$="SWORD" THEN PRINT "[DOWN]
    IT'S SHARP!": GOTO 85
220 IF B=2 OR W=1 AND C$="WAND" THEN PRINT "[DOWN]
   IT'S MAGIC!": GOTO 85
225 IF B=0 AND C$="TROLL" THEN PRINT "[DOWN]
    HE'S ANGRY!": GOTO 85
230 IF B=3 AND C$="CRYSTAL" THEN 240
235 PRINT "[DOWN]I CANT SEE IT HERE!": GOTO 85
240 C=INT ( RND (1)*3): IF C=0 THEN PRINT "[DOWN]
    I SEE DEADLY TROLLS!": GOTO 85
245 IF C=1 THEN PRINT "[DOWN]I SEE GOLD AHEAD!": GOTO 85
250 PRINT "[DOWN]I SEE NOTHING!": GOTO 85
255 IF C$="TROLL" AND B<>0 THEN PRINT "[DOWN]
    HE IS NOT HERE!":GOTO 85
260 IF C$="TROLL" AND W=0 THEN PRINT "[DOWN]
    YOU HAVE NO WAND!": GOTO 85
265 IFC$="TROLL"AND W=1 THEN T=INT ( RND (1)*2):GOTO275
270 GOTO 165
275 IF T=0 THEN PRINT "[DOWN]IT WORKED!": PRINT "[DOWN]
    THE GOLD IS YOURS!":G=G+1: GOTO 290
280 IF T=2 THEN T=0: GOTO 275
285 IF T=1 THEN PRINT "[DOWN]IT DID NOT WORK!":
    FOR Z=1 TO 2500: NEXT : GOTO 395
290 IF T=0 THEN PRINT "[DOWN]THE WAND BROKE!":W=0:
    GOTO 85
295 IF C$="TROLL" AND B<>0 THEN 255
300 IF C$="TROLL" AND B=0 THEN 395
305 IF C$="SWORD" AND B=1 AND S=0 THEN PRINT "OK":S=1:
    GOTO 85
310 IF C$="WAND" AND B=2 AND W=0 THEN PRINT "OK":W=1:
    GOTO 85
315 IF C$="CRYSTAL" AND B=3 THEN PRINT
    "[DOWN]TOO HEAVY!": GOTO 85
320 IF C$="WAND" AND W=1 THEN 335
325 IF C$="SWORD" AND S=1 THEN 335
330 PRINT "[DOWN]NOT HERE!": GOTO 85
335 PRINT "[DOWN]YOU ALREADY HAVE IT!": GOTO 85
340 PRINT"[DOWN]I HAVE:":
    IFS=1THEN PRINT"[DOWN]SWORD."
345 IF W=1 THEN PRINT "[DOWN]WAND."
350 IF G>0 THEN PRINT "[DOWN]GOLD:";G
355 IF S=0 AND W=0 AND G=0 THEN PRINT "[DOWN]NOTHING."
360 GOTO 85
365 IF C$="TROLL" AND B=0 THEN 395
370 IF C$="TROLL" AND B<>0 THEN 170
375 IF C$<>"EAST" AND C$<>"WEST" AND C$<>"SOUTH"
    AND C$<>"NORTH" THEN 165
380 IF B=0 AND W=1 OR B=0 AND S=1 THEN PRINT "[DOWN]
    HE WONT LET YOU!": GOTO 85
385 GOTO 35
390 PRINT "[DOWN]SCORE:";G*10: GOTO 85
395 PRINT "[CLR]THE TROLL ATTACKS!": FOR Z=1TO1000:NEXT
400 PRINT "[DOWN]YOU ARE DEAD.": PRINT "[DOWN]SCORE:";
    G*10: END
405 IF C$="SWORD" AND S=1 THEN PRINT "OK":S=0: GOTO 85
410 IF C$="WAND" AND W=1 THEN PRINT "OK":W=0: GOTO 85
415 IF C$="GOLD" AND G>0 THEN G=G-1: GOTO 85
420 PRINT "[DOWN]YOU HAVE NOT GOT IT!": GOTO 85
```

ROUTINES

I will give a free copy of MASTERMIND16 valued at $12 from Superior Software to the best routine/program I receive. Send then on tape or disk to the publisher.



THE PRINTER PAGE

by Paul Blair

Many computer owners have added printers to their hardware line-up, and many more will do so this year. With a bewildering array of claims, counter claims about printer capabilities, and some good and not so good printer manuals about, we thought we should open up the magazine pages to you. Why do that? Well, it would take us an age to borrow, beg or steal one of every type available, then a bit longer to put them all through their paces. By that time, another four new printers will have been released....

To kick things off, it seems reasonable to suggest an initial topic, one that is of interest to many people – word processing, and how to use some clever printer tricks with them.

First up, let's look at some of the useful things that you can achieve with one particular word processor (Easy Script) and one particular printer (the Star Gemini 10X). The printer connection set-up we have in mind uses nothing more esoteric than a simple cable between computer and printer. No special or expensive interfaces are needed for what follows.

We will assume that you can push your standard job applications, poems and Letters-to-the-Editor out from your C64 and through your printer to paper without any undue hassle. But what about some enhancements to improve the visual impact of your efforts? Underlining, italics, double print.... all of these can be used to dress up your printed output.

Easy Script provides two techniques. The first requires specific definition of some "control characters". These are usually set up at the start of your first text page, along with margins, paper length and so on.

There is an example on Page 8-10 of my manual, and it simply says that you may decide which of keys 0-9 you want to mean something by defining their ASCII value. You could define "A" on the "5" key by typing:

*5=65 <CR>

where "*" is the F3 key, 5 is 5, and 65 is the ASCII for "A". To also define the "6" key as "B", you would use:

*5=65:6=66 <CR>

When you want to use the first preset control character in the body of your text, you simply press F1 then the 5 key and you will see a reverse "5" on screen. When the text is printed, Easy Script will replace the reverse "5" with "A". That's a nonsense example, just to show you the style of things.

Easy Script also understands some other control characters. These are preset in the program itself, and are explained on Page 8-9 of the manual. Simply, the required function is called by pressing F1 then X, where X is the character shown in Section 8.2.10 on the same page.

With a lot of help from two Canberra gents, David Brown and Cliff Hicks, here are some useful combinations for your experimenting. One point – the "up arrow" key (next to RESTORE) won't print clearly enough in the final typeset of this article, so I will use two letters, UA, instead. The individual keypresses will be shown here with "//" between them, just to distinguish the keystrokes required. You don't type them!! The easy ones, where no presets are required.

Function	Effect	Keypresses
Underline ON	Underline until an Underline OFF cmd is sent	F1//+
Underline OFF	Turn off underline	F1//I
Double Strike	Print twice in same place	F1//UA//G
End D. Strike	Revert to standard	F1//UA//H
Emphasized ON	Print, move paper, print again	F1//UA//E
Emphasized OFF	Revert to standard	F1//UA//F
Italics ON	Print italics	F1//UA//4
Italics OFF	Guess What!!	F1//UA//5

Now, the commands requiring pre-sets before using them.

Function	Effect	Presets/Keypresses	
Enlarged print	Double width	6=14	F1//6
Normal print	No more big-uns	7=20	F1//7
Compressed ON	Half width	8=15	F1//8
Compressed OFF	Normal again	9=18	F1//9
Superscript ON	Print above line	0=0	F1//UA//S//F1//0
Superscript OFF	Line up again	None	F1//UA//T
Subscript ON	Print below line	1=1	F1//UA//S//F1//1
Subscript OFF	Normal again	None	F1//UA//T

You don't have to follow the assignments given here – I have chosen to use keys 0, 1, 6, 7, 8 and 9 but you could decide your own preference.

Combinations are possible. To get emphasized enlarged print, "add" two commands like this:

F1//UA//E//F1//6
and
F1//UA//E//F1//7 to turn off.

Some other type of printer and have worked out the basic Easy Script functions given here, put it down on paper and send it in.

If enough people want, we could then do Paperclip, Word Pro64 and whatever other programs are in common use.

LATE NEWS !! LATE NEWS !! LATE NEWS !!

It had to happen eventually. The only wonder is that it has taken more than two years since the release of the C64.

How about this? A high speed quality printer from a world famous company. Nothing special in that these days, except that this printer plugs straight into the serial port of your C64, and gives you Commodore compatibility. No wedges, no interfaces. Sound good?

There's more. With a high speed NLQ (near letter quality) mode, you can give your output that touch of class.

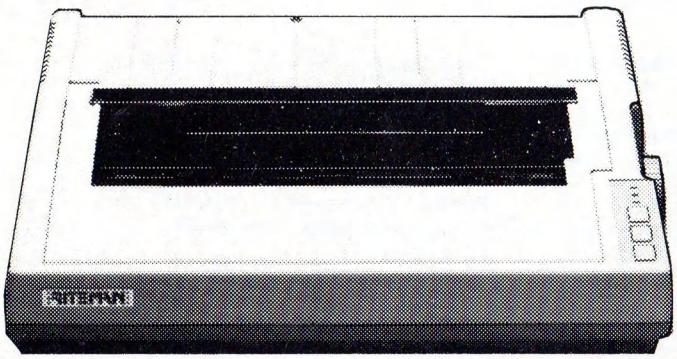
When? June, my informers tell me. Price? It would be a gambler who tried to figure out the vagaries of the international dollar, but under $500 RRP would seem an informed estimate at the time of writing.

Documentation (not written by Commodore, I promise) is being prepared now. Given previous efforts by the company concerned, it should be worth reading.

Stay tuned, and we will bring you a bench-test report. Meantime, save your pennies, clear the decks and watch these pages.....

THE RITEMAN How good is it?

Tony Petre – Christchurch User Group, NZ



Printers are an increasingly sought-after extra for the home computer, as more computer-owners seek usefulness as well as entertainment from their machines.

The printer models available change almost monthly, and it is a field of computing where there has been a good deal of progress in the last couple of years.

In this time the dot matrix printer has gone from "poor relation" to the daisy wheel to a position of pre-eminence: dot mat quality is now quite good enough for correspondence, and although the daisy-wheel still has an edge on absolute print quality it misses out badly on verstility, speed, quietness, and cost.

A name little known on the NZ home computer scene 12 months ago, but now becoming better-known by the day, is Riteman.

This Japanese-made printer combines small size and reasonable cost with good printing speed and very good print quality.

Like nearly all non-Commodore printers,it needs an interface to run on the Commodore computer range. The test machine for this article, a Riteman 120cps machine loaned by GT Computing, Gloucestor Street, hooked straight on to my C64's Cardco-6 interface, without any need to alter the interface switches.

It proved to do almost everything the Star will do, but it did need some changes in coding. And in spite of fiddling with the interface switches, I could not make it print pictures from the CADPIC/PRINTAPIC program by Kiwisoft --- something the Star does without difficulty. Perhaps a reader of "Connection" will have had more success. If so, please write and let us know.

As a further test, the Riteman was also hooked up to an NEC lap computer --- which, having a RS232 cable plugged straight in without the need for an interface. The Riteman 120 comes complete with paper separator, two ribbon cartridges (replacements are $NZ28.50 each), power cable and a manual.

The manual is too skimpy --- very much so, after Star's excellent effort for the Gemini, but quite good compared with the average Commodore printer manual. It also contains some extraordinary "Jinglish". Try this passage:-

"Although the same program in the printing example is represented in two lines to conveniently edit this manual, you should one line when entering a program."

There are also errata sheets --- which at least show the right attitude --- and most of the suggested small programs simply don't run on the Commodore. Most did not run on the NEC either, although it also uses common Microsoft Basic.

There were some odd differences between the two computers. The command given in the manual for resetting everything to normal, ESC ????,(the Star uses the same command) simply would not work on the C64. It worked on the NEC. Perhaps strange things happen in the interface...but why do they not also happen in the case of the Star? Similarly the Chr$(14) command which turns on expanded print from the C64 to the Riteman, and which puts most printers into expanded from the NEC, stubbornly refused to work with the NEC/Riteman combination. No doubt more experimentation would have produced an answer, but my time with the NEC was limited.

At first I thought that the test printer had a defective ribbon: in spite of various adjustments and attempts at cleaning up the plastic ribbon-guard (which is part of the replaceable cartridge itself) the printer smudged lines, sometimes quite badly. Stupid me. If you examine the pictures in the Riteman manual, you will see that the paper is supposed to be led out through a slot in the printer cover. It is a slightly awkward arrangement, but the result of correct paper positioning is sparkling clean, unsmudged printing.

The ribbons are probably reinkable. The manual says nothing of it, but there is a hole in each cartridge which looks as if it should accept some ink to recharge the ribbon. This could reduce ribbon costs very substantially, as it takes a long while for a ribbon to wear to the point where it is physically damaged.

Loading paper into the Riteman is slightly more difficult than with some other printers, because of the need to locate perforated paper on the pin-feed sprockets at each end of the platen, and to cope with that slot in the perspex cover. The printer will, of course, also accept straight friction-feed paper, either in sheets or from a roll, but I found that the friction mechanism lacked the grip to pull paper from a full roll of teleprinter paper, even mounted on the correct roller. Once the roll got down a bit, and its inertia reduced, there was no problem.

It is important to note the difference between pin-feed and tractor-feed. The pins locate standard-width perforated paper---they are not intended for such things as tractor-feed labels, which are uch narrower. If you want to run narrow labels you may get away with using them with only the left-hand edge located by the pins, but it is really not a substitute for proper tractor feed.

If you want tractor-feed gear for the Riteman it is an extra. The gear, which includes a different plastic printer-cover to allow for the extra height of the tractors, is $NZ90 extra. So if you must have tractors, the Riteman may be less of a bargain than it seems. Do you need one? That really depends on whether you plan to use address labels in substantial numbers. If you don't, then plainly there is no problem.

The Riteman is particularly good value at present. The cash buyer can pick up a 120 cps machine for $NZ625, and for only another $NZ25 extra you can have the Riteman Blue, which prints at 140 cps, and has a few other differences too.

The Blue has both pica and elite type: with the 120 you get only pica, although you can have condensed, expanded, double-strike, expanded condensed, subscript, italic, and so on.

Things the Blue has, that the 120 hasn't, include additional foreign character sets and a couple of additional graphic modes. In practical terms, it comes down to the extra speed.

My experience of printers so far includes two Commodore models---neither of which I would recommend, for although they do not need an interface they provide very limited printing variations at high cost, and in the case of the cheaper Commodore printers, I believe that letters without good ascenders and descenders are simply not acceptable these days.

I am also familiar with printers from C.Itoh, NEC Pinwriter, and Star. And now the Riteman.

So the question is---would I buy a Riteman?

Yes, like a shot --- at present prices. The Star, which is a heavier grade machine (and which is just out in a new model with minor differences to the previous 10FX model) is about to rise to more than $NZ950, without interface. At this price it puts itself out of contention for most home users. At under $700, the Riteman 120/140 is a much better buy, and perfectly adequate for home users, and probably for a few light-business users as well. For that matter, there are also the Super 5 models to look at in this price range.

The Riteman range has a lot going for it. The machines are making a name for themselves overseas as well as in this country, and with good reason. If you're in the market for a printer, look them over.

How we did figure 1...

We defined (using F3)

0 as 0
1 as 1
2 as 14
3 as 15
4 as 18
5 as 20
6 as 146

To get

condensed we then used	f1 5
normal	f1 4 f1 6
double	f1 2
out of double	f1 3
reverse	f1 (
out of reverse	f1)
underline	f1 ↑ – f1 1
out of underline	f1 ↑ – f1 0
italics	f1 ↑ 4
out of italics	f1 ↑ 5
subscript	f1 ↑ S f1 1
superscript	f1 ↑ S f1 0
out of sub/super	f1 ↑ T
double wide continuous	f1 ↑ W f1 1
double wide off	f1 ↑ W f1 0
emphasised	f1 ↑ E
out of emphasised	f1 ↑ F
double strike	f1 ↑ G
out of double strike	f1 ↑ H

Figure 1
This is a third generation photocopy and bares no resemblance to quality of print.
The figure illustrates type and style only.

USING THE RITEMAN

WITH EASYSCRIPT

This is condensed print and this is pica print

This is double width
and this is back to normal

This is underlined and this is not

this is in italic print and this is back to pica again.

This is emphasised printing in pica type and then *in italics for some variety.*

and now [illegible]

We now try condensed EXPANDED

We can also do subscript lettering nice and small and out of it again

The printer will reset to normal when turned off and on again

COMMODORE DOCTOR

by Dr. Greg Perry

The aim of this column is to help our readers with any problems they have with CBM/PETs, VICs, C64s, Plus 4/C16 and associated Commodore equipment. Send us your queries and we will do our best to provide an intelligent answer.

Alternatively, if you don't have any immediate problems but have discovered some smart tricks in BASIC or machine code, or even better ways to program some of our answers/articles we would be interested to hear from you. You never know the routine may even win you a prize for the best item published each issue.

Write to:

Commodore Doctor
The Commodore Magazine
82 Alexander Street
Crows Nest, NSW 2065.

OR MAIL them to me on VIATEL to my user number 738329500

Please ensure that any program listings are in NICE LISTER format and include a REM statement with your name and address. (By the time it passes through several hands and reaches me sometimes bits of the letter can have been mislayed. If not, I'm also likely to lose it!). Machine code programs should be in assembler format and not directly in hex. I apologise for the fact that, in general, letters can not be answered personally. Also, because of printing schedules and other factors, some questions may not appear until two months after they are received.

Comment

I have been rather busy this month playing with Telecom's new VIATEL service (more on this in later issues) and was quite stunned when I finally got around to opening the mail – there was a huge pile of competition entries! I thank all who entered and for the many generous comments regarding the magazine. Unfortunately there can only be a limited number of winners.

Questions and Answers

Q. I have three questions regarding my SX-64.

a. I have just read '1541 Disk Drive Bugs' by Paul Blair and discovered why MUSICALC 1 will not save on my SX-64. (Hopefully). Is there any means of patching the SX-64 DOS to retain the 1541 format And write compatibility.

b. What problems (if any) are associated with using a 1541 drive as drive 1 on the SX-64.

c. Can I obtain a VDU display on TV or Video Cassette Recorder using the SX-64 without modifications?

Jim Marriner
OXLEY 4075

A. As Paul has said the DOS in the SX-64 has been modified to give it compatibility with the 4040 drive format meaning that it is only read compatible and not write compatible with disks formatted on a 1541. (That is, you may read a 1541 formatted disk on the SX but writing to it will sometimes result in disk errors and a loss of data. The same applies to using SX or 4040 formatted disks in a 1541.) It is possible to change the 4040 drive DOS with a few Memory-Write commands to provide compatibility with the 1541 but, unfortunately, this is not possible on the SX-64 without writing a completely new format routine.

Providing you label the disks as to their format (either 1541 or 4040), and do not mix them, there are no majour problems of using a 1541 as a second drive on the SX, save one. In order to use two drives, one must be set as device 8 while the other changed to device 9. This can be done by with a small software routine (see drive manual) or by a simple hardware modification. When using the software modification, one drive is turned off, the program run to change the remaining drive from device 8 to device 9, then the other drive is turned on again and powers up as device 8. Since it is not possible to turn off the drive in the SX, the external 1541 must be used as device 8 and the internal drive as device 9. This may not always be convenient and may lead to mixed formatting problems. The better method would be to fit a small switch to the front of the 1541 which selects between device 8 and 9. Many users have done this simple modification and if you have trouble contact your local user group or Commodore dealer.

It is not possible to connect the SX-64 directly to a TV since there is no modulated TV output. However the SX-64 comes with a monitor connection (8-pin DIN) on the back which enables the use of a Commodore or similar monitor or a VCR with the appropriate plug. These should be available from your local video shop or dealer.

Q. I have been having a problem with a machine code program – a wedge that will play a note every time I press a key, each key having a separate note. The difficulty is that when I attempt to SYS to the location the computer will freeze (RESTOREable). If I SYS 64738 after placing the machine language into memory or use a monitor I am alright. I admittedly have not used location $C000 but I would prefer to discover the problem.

Graeme Smith
FARRER 2607

A. Since the program itself was not included with the question I can only guess at the answer. First, double check the machine code for errors. Second, check that there is an RTS ($60) at the end of the program. It would appear that the program is getting itself into an endless loop and not returning to BASIC, or that the wedge is not wedging as it should, or that it has some other simple basic flaw. Please send us a copy, it sounds (no pun intended) like a nice little routine that our readers may be interested in.

Q. I recently bought a C-64 and have had no problems until now. Whenever I play a cassette or type in a program, half way through the program the screen freezes with only fragments of the picture showing. I have tried everyting to get the picture back but the only resort is to switch it off and on again. How can I stop this from happening?

Lauren McCormick
Wakool 2710.

A. The brief answer is you can't! Obviously you have a significant problem with one of the RAM chips in the C-64 or with the 6526 I/O chips. The only solution is to take it to your nearest Commodore Dealer for repair.

Q. I have an SX-64 and a BMX 80 printer connected by a TRONIX Cardco Interface. To do a Hi Res. screen dump using Simons Basic command 'copy' takes about 45 minutes! Is this correct or is there a better more efficient way? What is the best way to set up these peripherals for Easyscript? What is the best way to set up the 'dip' switches in both the printer and the interface? Have you got any startling programs which would display the full potential of this graphics printer?

Phil Koschitzke
Warracknabeal 3393.

A. Although I have not used your combination of equipment, a high resolution screen dump using the Cardco type interfaces is often a very slow process although 45 mins does seem a bit ridiculous. There are some faster interfaces about (see your local dealer for availability.) There are also several machine code high resolution screen dump programs available in the Public Domain (local user group) and one of these may be more useful. With regard to Easyscript, many people do not realize that the interface is not actually needed and that a centronics type printer can be run directly off the User Port with the correct cable. Drop a line to Peter Thompson c/o ACT Users Group (address elsewhere in this issue), he has had considerable experience with your type of printer and has written a number of wedges to run centronics printers directly from the user port.

Unfortunately we cannot supply any startling programs at present but at the moment, the best commercial program for graphics printers must be the PRINT SHOP from Broderbund Software (about $65.00).

PRINTER DIP SWITCHES

A number of other readers have written to us in regards to dip switch settings for centronics printers with the Cardco interfaces. The following is a summary of information kindly supplied by Ralph DeVries, editor of CCUGQ's CURSOR magazine. This is for GEMINI 10X type printers but should apply equally for other centronics printers.

After using the Gemini 10x and Cardco interface combination for some time, I have been able to rationalize the settings to such an extent that only ONE switch in the interface needs changing to cover all applications.

The printer has a bank of 8 switches internally and an additional bank of 4 switches externally. The internal switches should all be in the ON position. The external switches should be set as follows :

Switch 1 :..... ON
Switches 2,3,4 :..... OFF

NOTE :Do not touch these switches again, all further conversions are either done by the interface or under program control.

The Cardco/Tronix interface has a bank of 8 dip switches built in, and these are accessed by removing four screws and the cover. The standard configuration is as follows:

Switch	1	2	3	4	5	6	7	8
	ON	OFF	ON	ON	ON	OFF	ON	ON

This is the standard configuration which is used for

Program listings
Multiplan
Koala Printer
Speed Script
Print Shop
Gemini Instruction Manual Programs*

* regards the Commodore programs in this book: change the secondary address to 4 instead of 5 otherwise you get no line feed!

Switch 7 in the interface controls the conversion of Commodore (PET) ASCII to standard ASCII. With the following programs this switch should be in the OFF position:

Paper Clip
Doodle
Consultant
Easyscript *

* for Easyscript chose the MX-80 printer option and choose SERIAL output

IMPORTANT: Changes to dip switch settings while your equipment is switched on have no effect. To make effective changes while your equipment is switched on, you must disconnect the interface power supply from the cassette port, change the setting, and reconnect the interface power.

Other interfaces may have a different bank of dip switches but usually there is a so-called TRANSPARENT MODE, which is usually equivalent to the Cardco program listing mode. In this case you only have to reset the ASCII control switch for programs such as Paper Clip or Easyscript.

Competitions

Interesting One Liners

Two winners this month for one liners. Each will receive two instant lottery tickets
First, Owen Tinnion, from Cammeray 2062, provides three programs

Reaction Timer: Press the F1 key as soon as the word 'GO' appears on the screen and your reaction time between 0 and 4.25 secs is printed. The WAIT statement tests if the F1 key is pressed.

```
1 S=RND(1)*4000:FOR D=0 TO S: NEXT:
  POKE 162,0: PRINT "GO": WAIT 197,4:
  PRINT PEEK (162)/60 "SEC": GOTO 1
```

Two Player Reaction time game: Each player selects a key and presses it after the word 'GO' appears on the screen. Only the winner's key is printed. The FOR/NEXT loop demonstrates how the value of the variable being incremented by the loop can be changed within the loop. In this case it allows the loop to continue until a key is pressed.

```
1 S=RND(1)*4000: FOR D=0 TO S: NEXT:
  POKE 198,0: PRINT "GO": FOR X=0 TO 1:
  GET A$: X=-(A$<> ""): NEXT X:
  PRINT A$: GOTO 1
```

Burrow/ Modern Art: Another interesting use of the FOR/NEXT loop. Here the increment (STEP) is set to 0. As a result the variable X never reaches the value (2) at which the loop is exited. Hence the loop continues indefinately. The WAIT statement tests for the shift key, enabling the program to be halted when it is pressed and continue when released.

```
1 A$="[DOWN,UP,RIGHT,LEFT,YEL,BLK,
  <RED>,<BLU>]": PRINT"[CLR]":
  FOR E=1 TO 2 STEP 0: PRINT "[RVS]
  SPACE"MID$(A$,(INT(RND(1)*8+1),1);:
  WAIT 653,1,1: NEXT E
```

Our second winner is Graeme Smith from Farrer, ACT.

He provides a sound routine which plays different notes depending on which key is pressed. The PEEK(197) returns a value between 1 and 63 if a key is pressed but is 64 if no key is pressed. The AND 63 limits the values to 0-63. If no key is pressed, the result of PEEK(197) AND 63 is 0 and no sound is heard. The final value is placed in the high frequency byte of the SID's voice 1.

```
1 S=54272: POKE S+6,240: POKE S+4,17:
  POKE S+4,17:FOR A=1 TO 0 STEP 0:
 POKE S+1, PEEK(197) AND 63: NEXT
```

(I've modified this routine slightly from Greame's original.)

(Note: You may have to use the abbreviations ml,pO,?,wA,fO,stE (for STEP) etc to enter these programs correctly on one line.)

Competition 2

I've had a few more entries for this competition. Some have been close to the mark but none have been correct so far. After consultation with our editor, the prize for this competition will jackpot each issue until we receive a correct solution and program. Most entries still are missing the point – find a 'unique' rectangle that satisfies the requirements. By 'unique' I mean one which can be readily distinguished from all others by some critera.

The Problem: Two computer experts, who live on country properties, are having a quiet drink in a country pub. Expert 'A' owns a rectangular property which is totally enclosed within a 23 by 23 kilometre square. Expert 'B' knows the area of the property and that the sides are whole numbers (integers), but does not know the dimensions. He ('B') asks if the breadth of the property is greater than half the length. Expert 'A' answers. (We are not privilege to rural conversation, but we know the answer was either yes or no.) On hearing the answer, expert 'B' can now calculate the dimensions of the property. A farmer has been quietly listening to the conversation, and, although he did not previously know the area of the property, on hearing both the question and answer, thinks for a while, and then, to their astonishment, tells the computer people what the area and dimensions of the property are. (What happens to him after that we won't discuss.)

That's the problem. Can you do it? What is the area and dimensions of the property?

Hint one: work out the dimensions and areas of all the rectangles (including squares) with integer sides within a 23 by 23 square, then find which one is uniquely related to the length verses breadth question L>2*B). If two rectangles have the same area, and both have l>2*B then obviously neither can be the unique solution.

Hint two: For a correct solution to emerge the fact that there may be one or more rectangles which lie along the diagonal and therefore have lengths which are greater than 23.

At present, the winners jackpot has not been claimed for 5 issues and currently stands at 5 disks or 5 C10 cassettes (1 will be added each issue untilsolved). *Greg has agreed to throw into the pot a copy of his recently published book on Sound and Graphics for the C64.*

Good luck!

Competition 3

Out of the hundreds of entries (well, almost) for the star triangle competition from the last few issues, I have selected two winners on the grounds of simplicity and style. Many people used the most complicated methods combined with almost every BASIC statement to solve a simple problem! The Theory of Relativity is usually not required to add up a shopping bill! Don't forget that even the most complicated problems can usually be solved by combining several small, elegant, and to-the-point routines.

The first winner is Sue Brown from East Hills 2213

This program satisfies all the requirements, is short, neat, and efficient, using only those variables and statements actually required to do the job.

```
1 FOR I=0 TO 9: PRINT SPC(20-I):
  FOR J=0 TO I: PRINT "* ";: NEXT: PRINT:
  NEXT
```

Also try

```
PRINT "[HOME]": FOR I=0 TO 9:
  PRINT SPC(20-I):FOR J=0 TO I: POKE 646,
  RND(1)*16: PRINT "* ";: NEXT: PRINT:
  NEXT: GOTO 1)
```

The second winner is Bob Walker from Mona Vale, 2103. This uses a different approach using string variables.

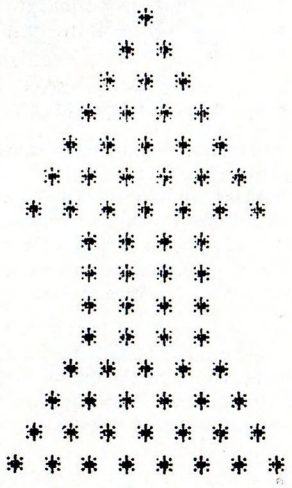
```
1 A$="* ": FOR N=1 TO 10: L$=L$+A$:
  PRINT SPC(20-N)L$: NEXT
```

Gillian Thomas, from Waterloo 2017, deserves a mention for the work put into her answer but unfortunately it was not quite what we were looking for.

COMPETITION 3/2

A new competition this month, a variation on the last one.

Using PRINT statements containing only one '*', write a program to draw the following pattern on the screen.



The competition will run for two issues from now. The best entry will be judged on skill, brievity, and elegance of the program. It can even be done with a one line program if you are devious.

Competition 4/1.

Machine Code.

It's about time we added a machine code problem. One small problem I had recently was to get a checksum for a program block recieved over an RS 232 line as three ASCII digits and convert it to a single byte hexadecimal value. It's quite good fun.

Write a program to convert a three digit ASCII number to a single byte hex number. Decimal 159 is contained in memory locations 1000, 1001, and 1002 as its ASCII equivalent.

Loc	Hex	ASCII
$1000 =	$31	= 1
$1001 =	$35	= 5
$1002 =	$39	= 9

The program must convert these values to a single byte hexadecimal value ($9F) which must appear in location 1004. (It must also work for any decimal number 0-255!)

The competition will run for a minimum of two months and the winning entry will be judged purely and simply by cleverness! Specifically, the winning program will be judged on speed of operation. The program should be placed in memory starting at memory location $1005. All entries MUST be as an assembler listing or handwritten. I do not want to sort through a hex dump!

I'll be waiting anxiously for next month's mail.

Regards Greg Perry.

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HIGH SCORE is for serious games players who thrive on competition. We are publishing the highest known scores of readers for any game on disk, cassette or cartridge on any Commodore machine.

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GALACTIC CROSSFIRE
27,010 Michael Bakes, Tas

MENAGERIE
6,100 J.H. Fry ACT

MONEY WARS
104,240 D.G. Fry ACT

RADAR RAT RACE
137,540 Tom Spencer, Qld

RAID ON FORT KNOX
13,783 D.G. Fry ACT

SPRITEMAN 64
92,290 Brendon Madden VIC

TRASHMAN
265,765 Maxine Brown, ?AUST.

VIC FROGGER
225,000 J.H. Fry A.C.T.

FALCON PATROL
95,000 Jeremy Bone, SA

SAMMY LIGHTFOOT
54,376 Greg Taylor, Qld.

ATTACK OF THE MUTANT CAMELS
52,280 Brendan Madden Vic.

LOCO
100,400 Brendan Madden Vic.

Definitions

FRUSTRATION
– A free Australia Post Service

HANG UP
– Telephone complaint departments last resort.

DISCOUNT
– What the Commodore Magazine offers in lieu of prompt delivery.

ADVENTURE GAME
– Something that has increased the suicide rate TENFOLD in 5 years. – *Greg Taylor,Qld.*

EDITOR
–Poorest form of artificial intelligence

SLIPPED DISK
– Standard operating procedure in the 1541

UPGRADE
– Complaints get so bad we had to fix it.

SUPERBASE
– Telephone Box

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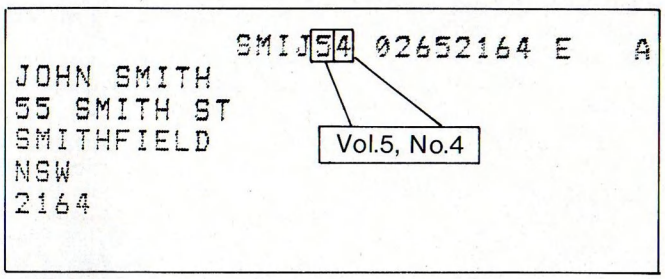

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THE OTHERS **continued from page 31**

To move the sprite:

```
: MOVE-X-LEFT
  VIDEO 16 + 0 C! ( for left hand side of screen)
  255 24 DO ( for X = 24 to 255 )
  I X-POS ( set X pos )
  LOOP ;

: MOVE-X-RIGHT
  VIDEO 16 + 4 C! ( RHS of screen )
  65 0 DO ( for X = 0 to 65 )
  I X-POS ( set X pos )
  LOOP ;

: MOVE-X
  BEGIN ( start loop )
  MOVE-X-LEFT
  MOVE-X-RIGHT
  ?TERMINAL ( last key pressed ? )
  UNTIL CR ; ( stop if run/stop )
```

When MOVE-X is executed, the sprite will move from left to right.

Having hidden all the hard (e.g. '@' and '+') you can now begin to write your own 'sprite language' which can almost look like English.

References

1. "Starting FORTH" by Leo Brodie. About the best introduction around, but expensive.
2. "Discovering FORTH" by Thom Hogan
3. "Introduction to FORTH" by Ken Knecht
4. "FORTH on the BBC microcomputer" by Richard de Grandis-Harrison. This is an excellent text – most of it is applicable to CBM 64 FORTHs except for the section on the editor.

(c) David Roth 1985

DIRECTORY – continued from page 25

```
8010 INPUT "CONFIRM [Y/N]";Y$
8012 IF Y$="N" THEN PRINT "[UP2]": FOR I=1 TO 44: PRINT " ";:
     NEXT : GOTO 6050
8015 PRINT "WIPING ";D$(F)
8017 J$="S0:"+D$(F)
8020 OPEN 1,8,15,J$
8022 CLOSE 1
8025 FOR T=F TO E:D$(T)=D$(T+1):C(T)=C(T+1):C$(T)=C$(T+1):
     NEXT
8028 H=H-1:E=E-1:F=16*(H-1)
8030 PRINT "[CLR]": GOSUB 10000: PRINT "[UP]": GOTO 200
10000 PRINT "U-UP * ";
10010 PRINT "D-DOWN * ";
10020 PRINT "R-RUN L-LOAD * N-NEXT PAGE * W-WIPE": PRINT
10200 A$="D": RETURN
```

EPROM – continued from page 24

```
710 PRINT "END ADDRESS IN HEX": PRINT : INPUT B$:
    IF LEN (B$)<>4 THEN 710
715 GOSUB 900: POKE 249,(AD-( INT (AD/256))*256):
    POKE 250,( INT (AD/256)): RETURN
800 PRINT "NUMBER OF BYTES IN HEX": INPUT B$:
    IF LEN (B$)<>4 THEN 800
805 GOSUB 900: POKE 247,(AD-( INT (AD/256))*256):
    POKE 248,( INT (AD/256)): RETURN
900 FOR X=1 TO 4
905 IF MID$(B$,X,1)<":" THEN SU=48: GOTO 915
910 SU=55
915 B(X)=ASC ( MID$(B$,X,1))-SU
920 NEXT X:AD=4096*B(1)+256*B(2)+16*B(3)+B(4): RETURN
```


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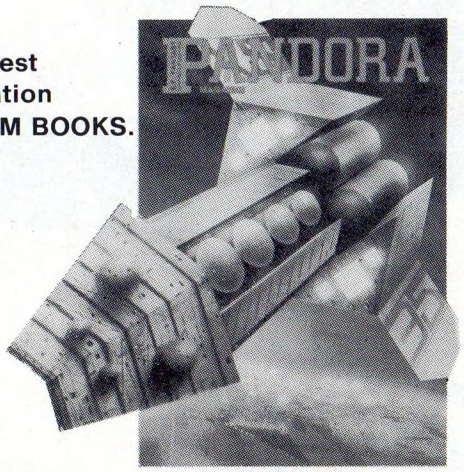

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PART III

A description of the workings of the Home Library program will appear in Part III of this series. It will also demonstrate how the program can be changed to meet special requirements.

The C64 listing (earlier version – some small modifications have been since made to screen layout) appeared in the last issue. If you missed this (or can't be bothered typing it in) – require a C16, plu/4 or VIC-20 version they are available from the publisher KIM BOOKS, 28 Alexander Street, Crows Nest, NSW 2065

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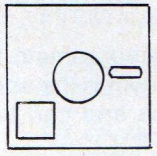
PLUS/4 AMENDMENT – Check line 6015 it should now read

6015 IF I = 0 THEN 6150



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Home Library User Guide

Commodore 64
Commodore 16
Plus/4
VIC-20 (16K/24K)

by Bob Hoffman

This Manual forms PART II of a Multipart Series

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Getting Started 1
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8. Modify 10
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Published in The Commodore Magazine Volume 5 Number 2

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GETTING STARTED

There are limitations in the number of items that can be included in a single file. Overcome this by dividing your collection into sections by subject. The limits for each type of computer:

VIC 20 (16K expansion) 250 books
VIC 20 (24K expansion) 400 books
Commodore 64 500 books
Commodore 16 100 books
Plus/4 500 books
Plus/4 (using C16 version) 1200 books

If you have a small number of volumes to enter, there is no need to worry, any collection over half the size of the limit for your machine should be split. In choosing subjects, try to pick some that are fairly distinct from each other so that you are not likely to have trouble working out later which file was used for a particular book or specific topic.

Plan for expansion of collections by avoiding the use of subject areas that already approach the maximum file size.

Pick topics that you consider are important – i.e science fiction, children's fiction, general fiction, computing, history, art, literature, reference, librarianship, and general non-fiction. Inevitable overlaps will occur – e.g. a reference book on art, it may be included in more than one file.

FILE NAME

Every file used needs a unique title (e.g. 'history'). Use file names that are less than sixteen characters long and that sound correct with the word 'books' after them – e.g. 'art' books.

Each time you run the program, you will be asked for a file name. Take care to enter it correctly especially where upper and lower case characters are used.

NOTE: If you use one name when you first store details of books and another the next time, the computer will not be able to find the file on the disk or tape.

If RETURN is pressed when file name is asked for, the name "trial" will be automatically assigned. It is not a bad idea to start with a trial data base before begining to use the system seriously. It will give a chance to get used to the features of the program without messing up important data.

7. DELETE

This will permanently remove any records for books which are no longer wanted on the database.

You are first asked to indicate the author of the book to be deleted. Each book by that author is then displayed in turn and you have the option to retain or deleting it. If deleted there will be a delay while the database is updated.

8. MODIFY

The modify option allows the change of any record. Indicate the author of the book to be modified. This works in exactly the same way as an author search (see option 6). The books written by this author are then displayed one by one.

All fields are displayed in exactly the way they were entered. A word that does not fit on a line will be split in two rather than appear at the beginning of the next line. This allows you to see the exact spacing in the record. Plus/4 owners will also be able to see the subject field – not displayed in any other option.

Opportunity is given to change each field. Press RETURN and the field remains unchanged. Enter modifications and then press RETURN – the existing field will be replaced.

When you have finished making changes there will be a delay while the sort orders are updated.

The next record is then displayed if anymore books by the same author remain. It is possible to see a record you have already changed; this happens when the sort order is changed so that the record comes later in the sequence and can be ignored – just press RETURN for each field.

When all records for books by the indicated author have been displayed, you are returned to the main menu.

9. END

This option is chosen when you have finished with the program and have saved any changes in the database to disk or tape (see option 3).

SINCLAIR, IAN
COMMODORE 64 DISK SYSTEMS AND PRINTERS

SWANSON, PAUL
MICROCOMPUTER DISK TECHNIQUES

[ANON]
VIC-1541 SINGLE DRIVE FLOPPY DISK USER'S MANUAL

The subject of a search on the Plus/4 will retrieve a word, the beginning of a word or a phrase in the subject field. Sometimes, however, you want an exact match only; in this case, add an asterisk (*) to the search formulation. This will only work if an asterisk is put at the end of each subject heading when entering in details of books (see option 1).

EXAMPLE 12
Use of the asterisk to limit a subject search on the Plus/4:

SEARCH FOR:
CHURCH

BEDE
A HISTORY OF THE ENGLISH CHURCH AND PEOPLE

DEARMER, PERCY
EVERYMAN'S HISTORY OF THE ENGLISH CHURCH

GILBERT, MARTIN
WINSTON CHURCHCILL : THE WILDERNESS YEARS

MEADOWS, DENIS
A SHORT HISTORY OF THE CATHOLIC CHURCH
What's this? Did Winnie turn to religion during his time as a political outcast? Perhaps he did but it was not one of the subjects I selected for Gilbert's book. However, Churchill's name was among them and the first six letters of his surname caused this search to pick it up. In order to restrict the results to books on church history (this was run on a history file so it was not necessary to specify history in the search), an asterisk can be used with the following result:

SEARCH FOR:
CHURCH*

BEDE
A HISTORY OF THE ENGLISH CHURCH AND PEOPLE

DEARMER, PERCY
EVERYMAN'S HISTORY OF THE ENGLISH CHURCH

MEADOWS, DENIS
A SHORT HISTORY OF THE CATHOLIC CHURCH

MENU

The main menu is headed by the name of your file and the number of books on it (it will always start at zero until you load your file). Then it lists a number of options:

1. INPUT NEW BOOKS
2. LOAD FILE
3. SAVE A FILE
4. DISPLAY
5. PRINT
6. SEARCH
7. DELETE
8. MODIFY
9. END

Simply type the number of the option you wish to select. It is not necessary to press the RETURN key.

Each of the options is discussed in detail below.

1. INPUT NEW BOOKS

Type in the details of each book as you are prompted for them. Do NOT use commas (,) or colons (:) unless you are using a Plus/4.

Up to 80 (88 in the VIC-20) characters may be used if you wish to make corrections. Press RETURN when you are satisfied with that all is correct. The prompt for the next field appear.

Authors should be entered with the last name first followed by the rest of the name or initials.

If you have quite a number of books to do, it is a good idea to enter them in alphabetical order by author starting with the 'A's – this will cut down sort times later. This is only worth doing if there are more than fifty titles.

Where there are a number of books by the same author only enter the author's name once. After that simply press RETURN when asked for the author. The name from the previous entry will automatically be assigned.

Books without authors will need something typed in before pressing RETURN (otherwise you will get the last author's name). Use anything except zero (0) but be consistent and try to start with a symbol such as a hyphen (-) or a square bracket ([) so that records without an author are put somewhere at the beginning or the end of a list sorted by author rather than in the middle. Put in [ANON] for anonymous.

After entering the title, there may be a short delay as the author and title are put into alphabetical order. This will increase in length as the database grows but should never be more than a few seconds.

On the Plus/4 only, you are also prompted for a subject. Put in as many subjects as will fit on two lines (the 80 character limit). More than one word can be used as a

subject and it is a good idea to put an asterisk (*) at the end of each subject – but always leave a space after the asterisk before beginning the next subject description. If entering fiction, you may not want to use subject descriptions and can press RETURN to ignore this field but the subject area is useful for keeping track of categories of novels (e.g. "MYSTERY") or series (e.g. "LENSMEN 5").

IMPORTANT: When you are finished entering books, type in a zero (0) and press return when asked for the next author. You will then be returned to the main menu.

EXAMPLE 1
Input on the VIC-20, Commodore 64, and Commodore 16. NOTE: The blank line represents a RETURN typed in response to the request for the author of the second book by Robert A. Heinlein. His name will be automatically inserted here by the program.

```
AUTHOR:
HEINLEIN ROBERT A
TITLE:
THE NUMBER OF THE BEAST
AUTHOR:

TITLE:
STRANGER IN A STRANGE LAND
AUTHOR:
ASIMOV ISAAC
TITLE:
THE ROBOTS OF DAWN
AUTHOR:
VERNE JULES
TITLE:
A JOURNEY TO THE CENTRE OF THE EARTH

AUTHOR:
0
```

EXAMPLE 2
Input on the Plus/4. NOTE: The blank line represents a RETURN typed in response to the request for the author of the second book by Paul Murray Kendall. His name will be automatically inserted here by the program.

```
AUTHOR:
KENDALL, PAUL MURRAY
TITLE:
RICHARD III
SUBJECT:
RICHARD III* BIOGRAPHY* ENGLAND* WARS OF THE ROSES*
AUTHOR:

TITLE:
WARWICK THE KINGMAKER AND THE WARS OF THE ROSES
SUBJECT:
RICHARD NEVILLE, EARL OF WARWICK* BIOGRAPHY* ENGLAND*
KINGMAKER* WARS OF THE ROSES*
AUTHOR:
ROSS, CHARLES
```



```
BLUE ABOVE THE TREES
CLARK MAVIS THORPE

BLUE FIN
THEILE COLIN

BLUE RIDGE SUMMER
PAICE MARGARET
```

The TITLE KEYWORD option available on the Commodore 16 and the Plus/4 is a bit different. This will find a word, the beginning of a word, or a phrase anywhere in the title – not just the beginning.

EXAMPLE 10
Title keyword search:

```
SEARCH FOR:
BLUE

BRINSMEAD H F
PASTURES OF THE BLUE CRANE

CLARK MAVIS THORPE
BLUE ABOVE THE TREES

PAICE MARGARET
BLUE RIDGE SUMMER

THEILE COLIN
BLUE FIN
```

The Plus/4 also offers a SUBJECT search. This will find books on any subject represented in the subject fields put on when books were entered on the database. As usual the subject field is not itself displayed on the screen or print-out. If you cannot understand why a particular book has been selected, you can use the modify option (see option 8) to look at its subject field and change it if necessary.

EXAMPLE 11
Subject search on the Plus/4:

```
SEARCH FOR:
DISK DRIVE

ENGLISCH, L & SZCZEPANOWSKI, N
THE ANATOMY OF THE 1541 DISK DRIVE

HEILBRON, J & TALBOTT, R
VIC-20 USER GUIDE
```

CARPENTER RICHARD
CATWEAZLE AND THE MAGIC ZODIAC

CARROLL LEWIS
ALICE'S ADVENTURES IN WONDERLAND

CARROLL LEWIS
THROUGH THE LOOKING GLASS

CARTER BRUCE
TARGET ISLAND

EXAMPLE 7
An author search which is slightly more specific yields more precise results:

SEARCH FOR:
CARR

CARROLL LEWIS
ALICE'S ADVENTURES IN WONDERLAND

CARROLL LEWIS
THROUGH THE LOOKING GLASS

It is possible to enter the whole of an author's name. Be sure to put it in exactly the same way it was originally entered. If you have a Plus/4 remember to put in any commas that were used.

EXAMPLE 8
Author search for a full name on the Plus/4:

SEARCH FOR:
KENDALL, PAUL MURRAY

KENDALL, PAUL MURRAY
RICHARD III

KENDALL, PAUL MURRAY
WARWICK THE KINGMAKER AND THE WARS OF THE ROSES

A TITLE (from the beginning) is available on all versions except the Commodore 16. Enter as much of the beginning of a title as you wish (you can leave out "a", "an", or "the" at the start of a title). All books with titles starting with the search words will be retrieved.

EXAMPLE 9
Title search:

SEARCH FOR:
BLUE

TITLE:
THE WARS OF THE ROSES : A CONCISE HISTORY
SUBJECT:
WARS OF THE ROSES* MEDIEVAL WARFARE* ENGLAND*
AUTHOR:
EARLE, PETER
TITLE:
THE LIFE AND TIMES OF HENRY V
SUBJECT:
HENRY V* BIOGRAPHY* ENGLAND* AGINCOURT* TREATY OF TROYES*
AUTHOR:
0

2. LOAD FILE

This option retrieves information previously saved to tape or disk (see SAVE below). You must be using the same file name that was used when the file below was saved.

Choose either disk or tape when prompted followed by a 'check equipment is ready' prompt. Enter Y to load or N to return to the main menu.

After loading is complete, you will be returned to the main menu. Check the number of books that is given at the top of the menu to make sure that the load has taken place.

3. SAVE A FILE

When finishing a session in which any changes have been made to the database through entering new books, deleting books, or modifying information it will be necessary to save the file. The file will be given the name entered at the start of the session and which appears at the top of the main menu before the word 'books'.

Select either tape or disk and the program will then pause to allow you to prepare equipment. When ready, press Y to continue or N to abandon the save and go back to the main menu.

4. DISPLAY

This will provide a list of all books in alphabetical order by author or title (author list only on the Commodore 16).

Four or five books will be shown at any one time and will remain on the screen until you press a key. To go quickly down through the listing, hold down the space bar.

If the words "a", "an", or "the" appear at the beginning of a title, they will be ignored in working out the sort order, but will appear on the screen as normal.

EXAMPLE 3
Display in author order:

ASIMOV ISAAC
THE ROBOTS OF DAWN

HEINLEIN ROBERT A
THE NUMBER OF THE BEAST

HEINLEIN ROBERT A
STRANGER IN A STRANGE LAND

VERNE JULES
A JOURNEY TO THE CENTRE OF THE EARTH

EXAMPLE 4
Display in title order (note that "a", "an", and "the" are ignored in determining the sort order):

A JOURNEY TO THE CENTRE OF THE EARTH
VERNE JULES

THE NUMBER OF THE BEAST
HEINLEIN ROBERT A

THE ROBOTS OF DAWN
ASIMOV ISAAC

STRANGER IN A STRANGE LAND
HEINLEIN ROBERT A

In an author order list, books by the same author are subarranged by title. Similarly in a title order list, two identical titles are listed in author order.

5. PRINT

If you have a printer, this will give a printed list in either author or title order (author order only on the Commodore 16).

After selecting the order for the book listing to be printed, there will be given a 'check the printer and paper' prompt. Make sure that the printer is connected and turned on and that there is plenty of paper for a complete list. The paper should be lined up so that printing starts at the top of a sheet.

Type Y to commence printing the entire list of N to abandon the process and get back to the main menu.

EXAMPLE 5
Print in author order:

```
SCIENCE FICTION

ASIMOV ISAAC. THE ROBOTS OF DAWN
HEINLEIN ROBERT A. THE NUMBER OF THE BEAST
HEINLEIN ROBERT A. STRANGER IN A STRANGE LAND
VERNE JULES. A JOURNEY TO THE CENTER OF THE EARTH
```

The printed list will be headed by the file name and will be printed on separate pages. The printer will advance the paper to the beginning of the next page when the last item has been printed.

6. SEARCH

Here you are given a choice of search options. After choosing one you are asked for a word or phrase to be searched for. Press RETURN when this is entered, there will be a delay while the search takes place. Then the results will be displayed on the screen.

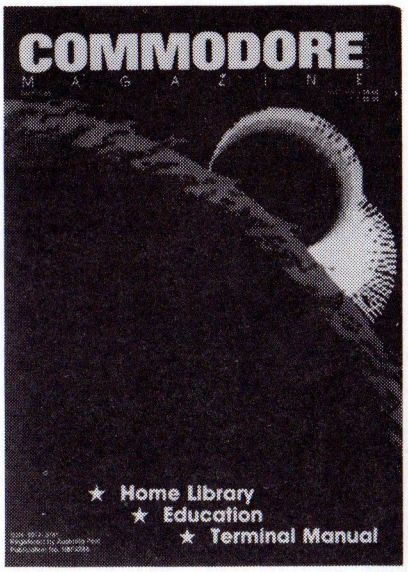
After all results are displayed, the option of a printed list is given. Answer Y for a print-out or N to return to the main menu. If a printed list is requested, you will be asked for a title to give the list; this will appear at the top of the printed list. After this the same procedure set out for the PRINT option is followed.

The types of searches that can be run vary from computer to computer. However, all offer an AUTHOR search. This will provide a complete list of all books written by authors whose names begin with the letters typed when asked what to search for. You may, therefore, get more than one author if you only specify a few letters. It is a good rule of thumb to enter as much of a name as you think will narrow down the search to one author only.

EXAMPLE 6
Author search:

SEARCH FOR:
CAR

CARPENTER RICHARD
CATWEAZLE



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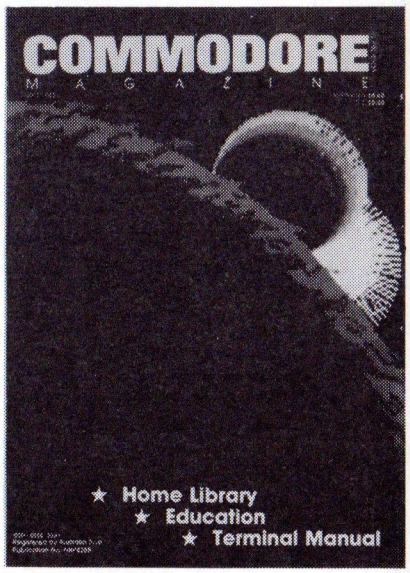

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82 ALEXANDER ST.,
CROWS NEST 2065

POSTAGE
PAID
AUSTRALIA

FREEPOST 24
KIM BOOKS
82 ALEXANDER ST.,
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